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ORIGINAL ARTICLES.

SOME OF THE PHYSICAL PROPERTIES AND MEDICAL USES OF RADIUM SALTS; WITH REPORT OF FORTY-TWO CASES TREATED BY PURE RADIUM BROMIDE.*

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THE keen interest which has been aroused by radium seems to make it desirable to give a report of progress concerning this new substance, rather than to wait for the more complete statement that would be possible if further time were given to the study of its action on skin diseases and new growths, and in other ways. I have, therefore, yielded to the kind solicitation of our President that I should read a paper at this time.

The discovery of the X-rays in 1895 was followed by that of the Becquerel rays in 1896. Becquerel found that uranium and its compounds emitted rays that acted on photographic plates enclosed in paper envelopes, and rendered the gases they passed through, air for example, a better conductor of electricity. To substances that gave out radiations of this character Mme. Curie gave the name "radioactive," and she demonstrated that the radioactivity of uranium and its compounds was an atomic property. Believing that this property did not belong to one class of matter only, she tested a large number of metals, metalloids and minerals, and compared their radioactivity with that of uranium.

In the course of this investigation she found some minerals, among others pitchblende, that were much more radioactive than was to be expected from the uranium present in them, and from this fact she inferred that they must contain a new substance, in small quantities, that was intensely radioactive. After long and careful work, Prof. and Mme. Curie, in conjunction with M. Bémont, succeeded in extracting from pitchblende the substance they named radium. Later Mme. Curie isolated the pure chloride of radium and determined the atomic weight of radium as 225, a figure which she considers exact within a unit. Demarçay determined the spectrum.

The radioactivity of different qualities of radium salts is determined by reference to uranium as a unit, that is radium has a radio-

activity of 1,000 or of 7,000 for example, which means that this radium is respectively 1,000 or 7,000 times more radioactive than uranium. The pure radium chloride is said to have a radioactivity of about 1,800,000; the amount of radium of such quality is small.

For practical purposes the strength of a given specimen of radium may be roughly measured by its power to penetrate iron. By means of this test, the purchase of a poor quality may be avoided. The specimens of pure radium bromide that I have render a barium platinocyanide screen distinctly fluorescent when 6.25 cm. (2½ inches) of iron are placed between them and the screen.

The salts only of radium, chloride or bromide, are used; metallic radium, like sodium, being unstable in the air.

*Physical Properties of Radium.**—Radium has five properties that especially deserve notice, which obtain constantly without appreciable loss in weight: (1) It maintains a temperature above its surroundings under thermal insulation; a temperature of 1.5° C. has been observed. (2) It is luminescent. (3) It is a spontaneous source of electricity. (4) It gives out three kinds of rays, named by Rutherford, alpha, beta, and gamma. (5) It produces in surrounding objects what Mme. Curie has called "induced radioactivity," what Rutherford has termed "excited radioactivity," and Soddy now designates as "imparted radioactivity." With our present knowledge of the subject, this latter word seems the most appropriate. This imparted radioactivity is caused by what Rutherford has named "emanation."

It is not necessary to discuss the first three properties of radium, but a few words concerning the last two will be useful.

Rays from Radium Salts.—The alpha rays constitute the largest part of the radiation. They are easily absorbed and are slightly deflected by a strong magnetic field. The beta rays are not so easily absorbed as the alpha. They are more strongly deflected by the magnetic field than the alpha rays, and in a different direction, but in the same direction as cathode rays. The gamma rays are the most penetrating of the three kinds of rays. They are not deviated by the magnetic field. (See the following diagram, taken from Mme. Curie's thesis, which shows the three types of rays and the effect of an electromagnet upon the alpha and beta rays.)

The rays from radium increase the electrical conductivity of gases, excite phosphorescence and fluorescence in certain substances, act on a

*Read at the meeting of the Boston Society of Medical Sciences, December 15, 1903.

At this meeting pitchblende was shown. The luminescence of preparations of radium salts of the radioactivity of 1,000, 8,000, and upwards of 1,500,000 (pure radium bromide) respectively, together with the power of these salts to excite fluorescence and phosphorescence, and to increase the electrical conductivity of the air were demonstrated. The ability of pure radium bromide to penetrate thick masses of copper and iron was also demonstrated. The beta and gamma rays were separated by means of a powerful electromagnet. The spinthariscopes was shown. Lantern slides made by radium rays were not shown for lack of time.

*The history and physical properties of radium are drawn for the most part from the thesis of Mme. Curie, "Recherches sur les substances radioactives," presented to the Faculty of Sciences of Paris, 1903, a copy of which I obtained in Paris through the kindness of Dr. Becquerel.

photographic plate, and produce both harmful and beneficial effects on animal tissues.

Emanation.—The emanation, which is thought to be a gas, imparts radioactivity to objects that have been in the neighborhood of radium salts for a sufficient period: that is to say, these ob-

Fig. 1.

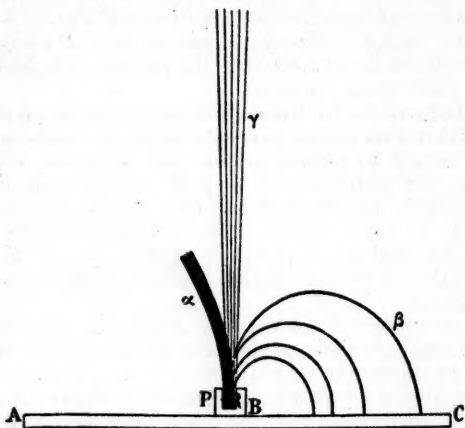


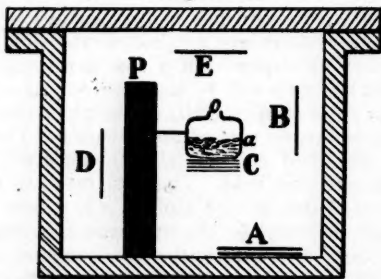
Diagram taken from Mme. Curie's thesis of 1903, illustrating the manner in which the alpha and beta rays are deviated by a powerful electromagnet.

jects, even after removal from the radium, give out rays for a certain length of time.

The following diagram is given to show the conditions under which the emanation acts.

If the unstoppered flask *ao*, containing radium salts, is placed in a closed receptacle and kept there for a day, the plates A, B, C, D, E, become radioactive. If, however, the flask is stoppered,

Fig. 2.



Cut taken from Mme. Curie's thesis of 1903, illustrating the manner in which radioactivity is imparted to surrounding objects by emanation.

no radioactivity is imparted to these plates. This experiment, described by Mme. Curie, shows that the rays do not play a direct part in the production of the imparted radioactivity, for the plate D, which is protected from the radiations by the thick lead screen P, is made precisely as radioactive as the plates B and E; the radiations can pass through the glass; the emanations cannot. The radioactivity of a plate increases

with the length of exposure up to a certain limit, is the greater up to a certain limit the stronger the radium, and disappears in the process of time when withdrawn from the action of the radium.

Radioactivity is imparted more readily when the radium salts are dissolved in water than when they are in a solid state, as in the solid condition very little of the emanation escapes, whereas in the former case it escapes as fast as it is produced. The emanation, when removed with the air from the receptacle containing the radium salts in solution and stored in an air tight vessel, disappears at a definite fixed rate. The radioactivity imparted by the emanation also disappears at a fixed rate.

Mme. Curie states that certain substances, such as rubber, celluloid, paraffin, etc., retain the radioactivity imparted to them longer than can be accounted for by the general law, that they seem to become charged with radioactive energy, under the form of emanation, which they lose gradually while imparting radioactivity to their surroundings. This may make rubber useful in treating certain diseases, as I shall point out later.

The foregoing is a brief statement of some of the physical properties of radium salts, a knowledge of which forms a necessary prelude to their intelligent use in medicine.

We will now consider radium salts from a medical point of view; they may be of service in two ways: First, by their rays; second by their emanation. Let us first discuss the rays and consider what their value may be (A) in diagnosis and (B) in therapeutics:

A. The rays from radium, unlike the X-rays, cannot be used for diagnosis or prognosis, either by means of radiographs or of the fluorescent screen, on account of their inability to show sufficient differentiation between the tissues; therefore, for these purposes they cannot replace the X-rays.

The X-rays, as you are aware, show with wonderful clearness, by means of radiographs, fractures and diseased conditions of the bones; make evident the presence of most varieties of calculi, whether in the kidneys, ureters or bladder, and demonstrate certain conditions obtaining in the chest. By means of the fluorescent screen, they enable the physician to observe, for example, the expansion and contraction of the lungs by watching the excursion of the diaphragm, to observe the position of the heart and follow its pulsations distinctly. By the aid, therefore, of these examinations the practitioner is assisted, for instance, to make an early diagnosis of tuberculosis of the lungs, and to recognize aneurisms in certain cases in which a diagnosis could not otherwise be made. In a word, an examination of the chest is not complete unless it has been looked into by the aid of the X-rays.

To illustrate the inability of radium salts to do this work, I have taken radiographs of a frog, both by the beta and gamma rays together and by the gamma rays alone. The radiographs taken

by the former process showed *no* differentiation between the tissues, and those by the gamma rays alone only slight indication of the bodies. The same frog taken by the X-rays showed beautiful differentiation of the tissues, and the time of exposure required was about $\frac{1}{50,000}$ as long as was necessary for taking the radiographs by radium.

If considerable amounts of radium salts could be used, the rays would then arise from so large an area as to prevent definition, and the improvement in differentiation would be so slight as to be negligible.

Satisfactory radiographs of solid metallic objects, such as keys, can be obtained by radium rays, however.

B. Radium is of value as a therapeutic agent.

The first person, so far as I am aware, to appreciate that radium salts would probably be of service in the treatment of certain diseases was Dr. William Rollins, of Boston, who has done so much to promote the use of the X-rays. Between two and three years ago Dr. Rollins put into my hands a metal box with an aluminum front, containing some chloride of radium, with the suggestion that I use it for therapeutic purposes. I did so employ it, but at that time the radium to be had was weak and I did not obtain definite results.

During the past summer I have seen the successful work being done in London with radium by Mackenzie Davidson, who most kindly showed me all his patients; and also the work begun in Vienna by Holzknecht.

The use of radium salts for therapeutic purposes needs much the same kind of experience as is required for the successful therapeutic use of the X-rays. As with the X-rays, caution must be observed when treating patients, for the sake both of the patient and of the practitioner, for radium if not properly protected, causes severe burns, which do not manifest themselves for a week or more. These burns are painful and heal slowly. Already a number of cases of injury to persons working with radium have been reported.

Precautions.—Radium, therefore, should be kept in a metal box or capsule with a thin mica front or other suitable covering, so that the radiations may be cut off in all directions except that in which the practitioner desires the rays to proceed. To such a capsule I have attached a long, flexible handle, in order to hold the radium at a distance when applying it. This handle is a protection to the practitioner. When not in use, the capsule should be placed in a thick lead box or tube, so that the radiations may be absorbed.

Radium not suitably protected should not be placed in the neighborhood of photographic plates, as it would injure them.

Method.—The method of using the radiations from radium is simple. If the strongest action of the radium is desired, the metal box containing the salts is placed on the part to be treated;

in this case the box should first be covered with a thin rubber cot, or other suitable substance, which can be readily removed, so that a new cot may be used for each patient and the old one burned up. By this means, the radium capsule does not come in direct contact with the part to be treated, but is separated from it by this new and clean covering. If a weaker action of the radium salts is indicated, the capsule should be placed at a greater or less distance, according to the needs of the case, the intensity of the rays diminishing as the square of the distance.

Exposures.—It is important to remember that an over exposure of a part may result in a burn, and that this burn may not become evident for some days after the exposure has been made. Further, that the exposures differ for different diseases, even superficial ones. Experience, therefore, is necessary to judge not only of the proper length of exposure, but also of its frequency.

Length and Frequency of Exposures.—Exposures must in some cases be longer, in others shorter, and the frequency with which they are given must vary. In some cases the treatment should be pushed; in others harm rather than good would result from this procedure. The exposure, then, must be adapted to the special case, and further experience is necessary to decide the best for all cases, but as a general rule, it may be said that when the beta and gamma rays of pure radium bromide (I have discarded the use of the weaker salts) are used together, for the treatment of superficial lesions, and the radium capsule is placed on the part to be treated, the length of exposure should be one-half to two or three minutes, according to what the practitioner desires to accomplish.

Exposures should not be made every day. Two or three times a week seems to me the safer procedure, as by this method an interval is given during which progress can be watched.

An exposure of many hours would be necessary if weaker forms of radium are used, that is radium of 1,000 or 8,000 activity, before any special results could be obtained, and these weaker forms would not be efficient as compared with the pure radium, so that they need not be considered. Pure radium bromide is none too strong for the work to be accomplished in certain cases; in those in which the full strength is not necessary, the radium capsule can be placed at any distance desired, and the exposure can also be shortened.

CASES.—Thus far my experience with pure radium bromide comprehends 42* cases, many of which were treated at the Boston City Hospital. Of these 42, 9 are diseases of the skin, namely, 1 case of acne, 2 each of eczema and psoriasis, and 4 cases of lupus vulgaris.

In the one case of acne, each pustule was exposed to the radium through an opening in a sheet of lead foil and healing took place.

In the two cases of eczema, two exposures were

*Since this paper was read I have had further cases of superficial new growths and two cases of lupus erythematosus.

given, and there seemed to be some improvement, but the itching was not relieved. The use of radium was then stopped, and the X-rays applied.

In the two cases of psoriasis, the radium was used for small areas only, to test its efficiency. Healing took place in each of these areas a few days after one exposure.

In the four cases of lupus, the results have been very satisfactory. In one of these cases I selected the area in which the disease was most severe for the employment of the radium, and treated the other parts with the X-rays. The portion to which the radium was applied improved much more rapidly than those for which the X-rays were used. Two of the patients are now apparently well, and the two others, for whom treatment was begun later, are improving. The action of the radium in all these four cases was far more prompt than that of the X-rays.

Of the remaining 33 cases, 1 is a small keloid, 5 are cases of rodent ulcer, 23 of epidermoid carcinoma, and 4 are breast cases.

In the first case, the patient had two small keloids, one of which is being treated by radium and the other by the X-rays. Improvement has taken place in both, but has been more rapid in the one treated by radium.

Two of the 5 cases of rodent ulcer have healed, and three show great improvement. One of these latter cases is an extensive growth that was increasing rapidly and the patient was fast losing in weight and strength. The use of radium was followed by marked and striking improvement locally—although at this stage of the disease the X-rays had not succeeded even in arresting the growth—and the gain in the patient's strength has been most satisfactory. In this case the radium has thus far shown marked superiority over the X-rays.

Of the 23 patients with epidermoid carcinoma, including one case of the auditory canal and one of the tongue (these were not readily accessible to the X-rays), 11 have healed and 12 are improving. Among the latter there is present promise that most of them will heal. One of these is a carcinoma of the lip that had been steadily treated by the X-rays, but did not yield to them, the second case only I have seen during the last four years of carcinoma of the lip which was not healed by the X-rays.

The four remaining cases are breast cases, three of which were originally recurrences after operation; the three latter cases are improving, although certain of them were not doing as well under X-ray treatment.

These cases show that radium is useful for treating some skin diseases, and superficial new growths; in this class may be included diseases of the cervix uteri, for example.

The application of radium, like that of the X-rays, is painless.

In new growths, when there is open ulceration and considerable induration, radium, like the X-rays, causes rather free discharge and the induration seems to melt away. The pain that

sometimes accompanies this process is due, I think, to small collections of fluid and seems to be caused by their pressure, as it is relieved after free discharge.

Tests with Beta and Gamma Rays; Use of Gamma Rays Alone.—I am now endeavoring to determine to what depth the healing action of radium salts may go. The method of approach to this question may be of interest to you. The experiments* to be described were made in a dark room with one of my specimens of 50 milligrams of pure radium bromide, and in making them the beta and gamma rays only needed to be considered, as the alpha rays are absorbed by the mica front covering the capsule. The two former used together cause healing in certain superficial cases, as we have seen. To learn whether or not the beta rays could penetrate deeply, I placed the end of my little finger in their path, after I had first separated them from the gamma rays by means of an electromagnet, and I found that under these conditions, even the flesh of the finger cast a marked shadow on the screen. This experiment, together with others that have been made, shows that most of the beta rays are absorbed near the surface and cannot be used to penetrate deeply. Also, while the beta rays were deflected, I put a sufficient thickness of aluminum in their path to absorb them wholly. I then tested the gamma rays with the same thickness of aluminum, to see if it cut off any appreciable amount of these rays, and found that aluminum even several times as thick interposed between them and the fluorescent screen cast no special shadow upon it. In this way I learned the thickness of aluminum required to cut off the beta rays from this specimen of radium, while allowing the gamma rays to pass, and therefore can easily expose a patient either to the rays that act on or near the surface, or can shut off these and use only the rays that penetrate more deeply.

As a further test of the penetrating power of the beta and gamma rays respectively, I placed a barium platinocyanide screen on one side of the body and 50 milligrams of pure radium bromide on the other and found that the gamma rays used alone made the screen fluorescent; that this fluorescence was much increased by the addition of 50 milligrams more of pure radium bromide but that the illumination of the screen seemed to be the same whether the gamma rays were used alone or with the beta. This experiment showed that the gamma rays can pass through the thickest parts of the body and that as we have already seen, the beta rays are more easily absorbed than the gamma.

Another question to answer was whether or not the gamma rays healed, and in order to do this it was necessary to find out the proportion of the beta and gamma rays given off by the radium salts, in order to know what exposure

*I had the privilege of making these experiments in the Lowell Laboratory of Electrical Engineering, of the Massachusetts Institute of Technology.

to make. This I determined by means of my fluorometer,* which showed that there were at least fifteen times as many beta as gamma rays. Therefore it seemed that the exposure given when the gamma rays alone were used must be longer than when they were employed in combination with the beta rays, or that it would be necessary to use a larger quantity of radium. I may mention, by the way, that thus far I have seen no irritation result from an exposure to the gamma rays that was twenty times as long as that given when the beta and gamma were used together. We may infer from this that the beta, rather than the gamma rays, are the ones that cause the burns.

The next step to take in order to determine whether or not the gamma rays could heal was to treat some skin diseases or superficial new growths with them alone. If these did not heal, then the attempt to treat deep seated new growths with radium might be abandoned, and a number of suffering patients be prevented from subjecting themselves to long, anxious, clinical tests in the hands of many practitioners. The trial I am making does not involve detriment to the patient, as it does not delay for more than a short time the use of the beta rays in case the gamma rays alone do not prove efficient.

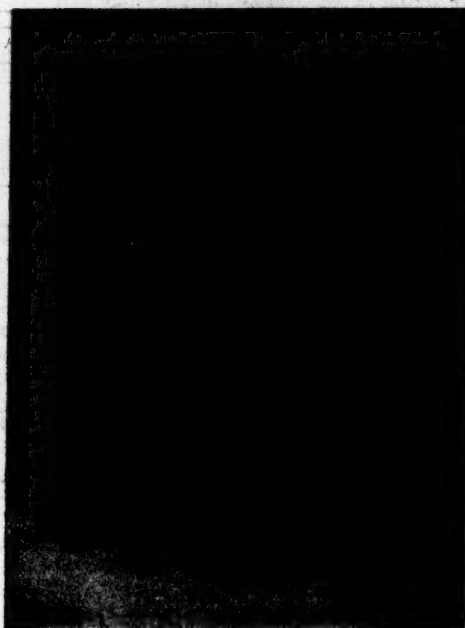
If the gamma rays are thus used, a sufficient thickness of aluminum must be put over the radium capsule to absorb the beta rays, for if the latter were not cut off, the exposure required for the small proportion of gamma rays given off by the radium would result in a burn from the beta rays.

So far as I am aware, my own cases of skin diseases and external new growths are the first to be treated by the gamma rays alone. Some of these tests are not yet finished, and the question of how much help can be obtained by using the gamma rays only, for treating deep seated new growths, I shall take up on another occasion, but these tests have demonstrated that the beta rays should not be used with the gamma for such new growths.

Radium Rays and X-rays Compared.—It will be interesting to compare the radiations from radium and the X-rays as a therapeutic agent in the treatment of *skin* diseases and *external* new growths. We shall see, I think, that the comparison at the present time is greatly to the advantage of the radium, and quite in contrast with the comparison which was made between radium and the X-rays for taking radiographs or for fluoroscopic examinations. In the first place, when radium is employed for healing purposes no cumbersome apparatus is necessary; radium is portable and always ready for use. Further, the dose from radium is uniform, the strength of the output does not vary, so that the dose depends entirely on the length of exposure and the distance of the radium from the part to be treated.

Radium may be applied to parts which are not readily accessible to the X-rays, as the mouth or vagina. Furthermore, the healing action of the radium is more prompt. The treatment, therefore, extends over a shorter period, and fewer exposures are required than when the X-rays are used. Radium has the further advantage of bringing about healing in some cases where the X-rays have failed after careful and long continued treatment by them. On the other hand, the following cuts published in this journal, October 3, 1903,* of a patient whom I treated with the X-rays, illustrate a type of cases in which radium would probably not be of service, at least with the amounts now at our command.

Fig. 3.



Case 78, A. D., twelve years of age. Microscopical diagnosis, lymphosarcoma after first operation and round-celled sarcoma after second operation. Duration, seven years. Before treatment by the X-rays.

Except, however, for certain classes of cases and the present superiority which the X-rays have of being able to cover larger areas than radium, as in cases of extensive psoriasis, the advantage at this time lies chiefly with radium. Of course, I need hardly say, it is yet too early to give a final and definite opinion as to the value of radium salts as a therapeutic agent. Sufficient time has not yet elapsed to enable us to know how permanent the excellent beginnings will prove. The X-rays have had a longer trial and, as we are aware, have done good service, and in regard to permanency of effects in cases of new growths,

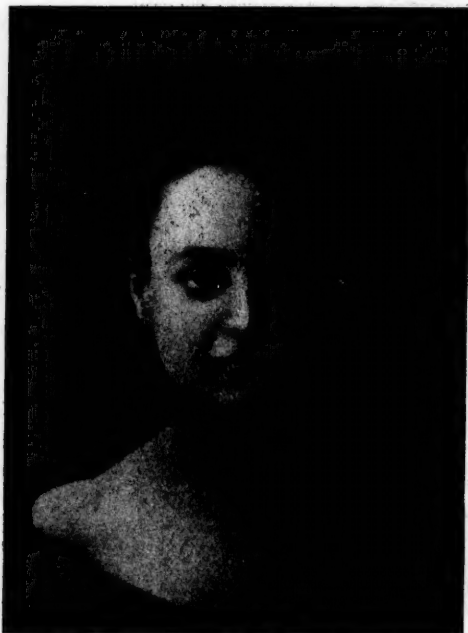
*Described on page 641 of the third edition of "The Roentgen Rays in Medicine and Surgery." Published by The Macmillan Company, N. Y.

*Taken from the third edition of "The Roentgen Rays in Medicine and Surgery," by permission of The Macmillan Company.

for example, have compared well with operation in some cases. For instance, in one of my cases of spindle-celled sarcoma the patient was operated on in June and again in September, 1901. A second recurrence took place in the following December, and in January, 1902, the patient was brought to me for treatment by the X-rays. He is now well and has been well for nearly two years. Still other patients, that had and had not been operated on, are well and have been well for about three years, since their treatment by X-rays.

If the results in treating superficial new growths, for example, with radium are only as permanent as those obtained by the X-rays, this

Fig. 4.



Case 78, A. D., twelve years of age. After treatment by the X-rays.

new agent will be of great service, or if such patients remain well for a longer period than has followed the use of the X-rays, we shall have still greater reason to be thankful to the discoverers of this substance.

Emanation.—The disadvantages under which radium seems to lie as compared with the X-rays, in covering large surfaces, may be only a seeming one, for it is possible that by imparting radioactivity to certain substances, such as rubber and celluloid, we may be able to extend the usefulness of radium. In order to do this, a sheet of rubber or other suitable substance may be made radioactive by exposing it to the emanation of radium, and this radioactive surface may be applied to a considerable area of psoriasis, for example.

Further, the emanation may be of service in treating diseases which are on or near the surface of the respiratory passages, in some such manner as that suggested by Soddy,* for the treatment of pulmonary tuberculosis. Whether or not it is fair to expect that this more deeply seated trouble can be helped by the emanation remains to be seen, but the proposed method does not seem to me to hold out much hope for the cure of this disease.

The emanation may also be used to impart radioactivity to liquids and a given liquid employed externally for healing purposes; or internally as a therapeutic agent, as has been suggested.

In conclusion, my experience thus far teaches me that there is much similarity between the action of the radiations from radium and the X-rays; that if the results obtained by radium prove permanent, this new therapeutic agent will be largely used instead of the X-rays, but that the two will supplement each other.

1. Certain diseases promise to yield more readily to treatment by radium and others to the X-rays.

2. A disease that has attacked different parts of the body of a given patient may be better treated in certain regions by radium and in others by the X-rays.

3. It is quite possible that in some cases the two remedies used together on the same area and at the same sitting may accomplish better results than either alone.

LATE RESULTS OF X-RAY TREATMENT OF SARCOMA.

BY WILLIAM B. COLEY, M.D.,
OF NEW YORK.

I HAVE very little to add to what I have already said in my paper read before the American Surgical Association in May, and yet the later histories of the apparently successful cases cannot fail to be of interest to those who are anxious as I believe we all are to determine the exact scientific value of this new therapeutic agent in malignant disease.

A year ago in a brief paper I attempted to outline the limitations of the X-ray in cancer and I emphasized very strongly that it was folly to characterize as cures cases in which but a few weeks or months had elapsed since the disappearance of the tumors. My own later experience has fully justified this conservatism.

Since February, 1902, I have observed 103 cases of malignant tumors treated with the X-ray; 30 recurrent carcinomata of the breast, 42 sarcomata in various localities, 28 cancer of the head, face and neck; 3 miscellaneous. Most of the cases were treated at the General Memorial Hospital under my direction, by Mr. W. P. Agnew and Dr. James Ogilvie.

* "A Method of Applying the Rays from Radium and Thorium to the Treatment of Consumption," *British Medical Journal*, 1902, II, 197-199.

I will briefly cite the after-histories of some of the apparently successful cases:

Case I.—Sarcoma of the Neck, Pectoral and Axillary Region.—Disappearance under four months' treatment. Metastatic recurrence in four months in abdomen and inguinal region. Growth slowly disappeared under one year's continued treatment. Patient's present condition: small tumor in eyelid; growths elsewhere apparently disappeared. January 8, 1904. Since October innumerable recurrences have appeared in the skin and subcutaneous tissues. More abundant in regions subjected longest to the X-ray. General condition one of rapid failure.

Case II.—Inoperable Round-celled Sarcoma of the Pectoral and Axillary Region.—Entire disappearance under five months' treatment with the mixed toxins and X-ray. Recurrence about four months later; second disappearance under resumption of the same treatment, in February, 1903. Local recurrence in August, 1903. The patient is still taking the X-rays and toxins at the present time.

Case III.—Round-celled Sarcoma of the Back, Recurrent.—Disappearance under the X-ray treatment in the summer of 1902; recurrence four months later, removed by excision; X-ray continued twice a week since, as a prophylactic measure. Patient well at present.

Case IV.—Round-celled Sarcoma of the Femur, Involving Two-thirds of the Shaft.—Amputation of the hip-joint advised in February, 1902; refused by patient and family; has had X-ray treatment almost continually from February, 1902, up to the present time. The local tumor nearly disappeared and there has been no increase since. The femur remains thickened and hard. Examinations of the tissues removed from the sinus failed to show any sarcoma elements. Metastatic growth developed in the pectoral region in December, 1902; partially removed by excision and the remainder disappeared under the use of the X-ray and the mixed toxins. A large metastatic growth developed in the right lumbar and iliac region; this softened under the toxin treatment and a large amount of broken down tissue was evacuated in January, 1903, under ether. The patient's physical condition remains fairly good and there is no marked evidence of a tumor at present, although the sinus in the back has not entirely closed and the one in the femur also remains open. During the last few months his general condition has, I think, slightly deteriorated. He has kindly consented to be present to-day. January 8, 1904. Condition the same.

Case V.—Recurrent Inoperable Carcinoma of the Cervix Uteri.—Case of Dr. Jarman. The patient was treated by Mr. Agnew, under my direction, at the General Memorial Hospital, during the summer of 1902. After a few months' treatment all evidence of the growth disappeared and examination in May, 1903, failed to show any return. She was examined further by

Dr. Jarman in October, 1903, and was still free from recurrence.

Case VI.—Carcinoma of the Breast, Deep-Seated, Inoperable, Involving Periosteum of the Ribs and Sternum.—The patient was treated at the General Memorial Hospital for about five months, from December, 1902, to May, 1903, with the result that the tumor entirely disappeared as far as could be made out from external examination. General health has remained good; she has resumed her occupation. Subsequent examination, October 1, 1903, shows a local return of the disease. December 15, 1903. There is no ulceration but a slight thickening in the original site of the tumor. The patient is in perfect health and working every day.

Case VII.—Advanced Hodgkin's Disease with Almost Complete Recovery, followed by relapse at the end of eight months, with speedy death. The patient, Mr. V. B., aged forty-three years, was referred to me by Dr. Frank Hollister on September 25, 1902. At that time he was suffering from far advanced Hodgkin's disease with greatly enlarged glands in the cervical, axillary and inguinal regions. The spleen was very much enlarged covering an area $8\frac{1}{2} \times 11$ inches and extending from the left side to within 2 inches of the right ant. sup. sp. and within one inch of the symphysis pubis. Frequent blood counts were made and these confirmed the diagnosis of Hodgkin's disease. The patient was put upon both the X-rays and toxins and improvement was immediate and very rapid. The tumors of the neck, groin and axilla entirely disappeared and he was able to leave the hospital within three months. The treatment was afterward continued by my associate, Dr. F. R. Cook, until March, 1902. In January he had been able to resume his work. The splenic tumor had diminished to about one-eighth its original size and the patient's general health was good. In April he became suddenly worse, developed a large, hard tumor in the region of the liver and died within a few weeks.

One of the most remarkable cases of sarcoma disappearing under the X-rays, is a case of round-celled sarcoma of the neck, recurrent, which was treated by Dr. E. Rodney Fiske, of Brooklyn. The patient had formerly been under my care and was regarded as entirely hopeless. He was treated by Dr. Fiske in December, 1901, with the result that the large recurrent round-celled sarcoma of the neck and axilla entirely disappeared. I showed him before the meeting of the Academy of Medicine in the spring of 1902. Dr. Fiske tells me that a few months later he had metastatic masses in both groins, which yielded to further X-ray treatment. The treatment was continued with more or less frequent intervals of rest up to the summer of 1903, when he was apparently well. He, however, died rather suddenly on September 23, 1903. The exact cause of his death is not known, but I think there can be little doubt that it was due to internal metastases.

Still another patient with a very large inoperable spindle-celled sarcoma of the abdominal wall, which I had considered entirely hopeless, has been under X-ray treatment by Dr. Clarence I. Skinner, of New Haven, since January, 1902. The treatment has been kept up with occasional intervals of rest up to the present time. The very large tumor, the size of an eight months' pregnant uterus has nearly disappeared and at present (October, 1903) he writes me she is feeling very well and attending to her duties as a school teacher.

This was one of the largest growths that I have ever seen nearly disappearing under the X-ray, but it cannot yet be classed as a cure.

Two patients with deep-seated carcinoma, one of the breast, the other of the sigmoid, were apparently greatly improved, but the later history shows the possibility of the X-ray favoring or hastening a general dissemination of the disease while the local condition is improving. This is a point of very great importance and yet, at present there is hardly sufficient data to enable us to settle it. The patient with the breast cancer was operated upon in July, 1902. The operation was only a palliative one and I was obliged to leave behind considerable infiltrated tissue in the pectoral region. I put the patient on X-ray treatment at once; the pain was relieved; the tissues softened and became normal to the touch and the normal movements of the arm were regained. The treatment was kept up with intervals, for nearly a year. When left off for a few weeks, the patient had neuralgic pains in the pectoral region and in the arm. Her general health was perfect. In May she began to complain of sciatica and lumbago. She lost weight. The pains became exceedingly severe and shifted from one region to another. There was no local return of the tumor, yet, I felt convinced there was a generalization of the disease. This opinion was confirmed by continuous and rapid decline in general health, resulting in death in August, 1903.

In the other case, that of cancer of the sigmoid and rectum, the local condition was greatly improved and the tumor which could be readily felt through the abdominal wall, became much smaller, so that it could no longer be palpated. The treatment was carried out by my associate, Dr. F. R. Cook, from October, 1902, to August, 1903. The patient was able to attend to his work. The pain, which had been very severe before treatment, was scarcely affected by the treatment. The patient's weight remained nearly the same the entire time. Early in August he grew worse rapidly and died in less than a month. It should be stated that, in addition to the X-ray, the mixed toxins were given in this case most of the time by his family physician.

In several cases in which small recurrent nodules appeared in the skin, following operation for cancer of the breast, the nodules all disappeared after a few weeks' treatment. In every case, however, there was a speedy return

after the cessation of treatment. In one case a gradual enlargement of the sternum and ribs developed while a small skin nodule was being treated in the same region.

Of thirty cases of recurrent cancer of the breast that have been treated at the General Memorial Hospital or in private, in but a single case has a large and deep-seated growth disappeared after six months' treatment.

Prophylactic Value of the X-ray.—This is a question of great importance and the surgeon will more and more frequently be asked whether it is wise to have a course of X-ray treatment after operation for external cancer. At present I do not think we can answer it in a positive way. It will require a very large number of cases covering a period of many years before we can draw any scientific conclusions. There are too many factors that enter into the problem.

The results of operation for cancer of the breast, for example, differ so widely in the hands of different surgeons, that one might reason from one series of statistics that operative treatment was of value, and from another series, that 75 per cent. of patients were cured. If then, it is difficult to determine the value of operation alone, how much more difficult is the problem of determining the value of operation plus after-treatment with the X-ray.

I believe that there are good theoretical reasons for using the X-ray after operation, and yet, I must confess that my results thus far have not given much practical support to the theory. In one patient, I operated a year and a half ago for double carcinoma of breast and removed both breasts and axillary glands. The wounds healed quickly and well, but fearing a return, I placed her immediately upon regular X-ray treatment, four times a week. At the end of six weeks small nodules appeared in the skin in the vicinity of the cicatrix in the very region of the X-ray exposures, and continued to increase in size under prolonged X-ray treatment. In addition, the patient soon became cachectic and showed signs of generalization of the disease.

In another case of carcinoma of the breast, that of a woman thirty-four years old, with a small growth and slight involvement of the axillary glands, I began the X-ray as soon as the wound was healed, a year ago, and kept it up for six weeks to two months. In about eight months a small nodule developed beneath the skin in the center of the area rayed.

In one of the most recent works upon X-ray therapeutics, a trial of the X-ray is advised before operation in operable cases. I believe such treatment positively dangerous for two reasons: first, a possible temporary improvement is likely to blind the patient as well as the physician to the grave danger of general dissemination, even while the local trouble is apparently decreasing; second, if after a trial of the X-ray an operation is decided upon, the surgeon will be less able to appreciate the full extent of the growth and will be inclined to leave behind infected

tissue. Still again, it has been shown that tissues long exposed to the X-rays often fail to heal well.

One month ago I operated upon a patient with far-advanced epithelioma, involving nearly the entire lower lip. He stated that $1\frac{1}{2}$ years ago he had a small epithelioma of several years' standing. Having been told that the X-ray offered better chances than surgery, he tried the former, and after 13 treatments the growth had entirely disappeared. After a few months it recurred locally and the X-ray treatment was resumed and carried out regularly and thoroughly, fifteen-minute exposures being given, but this time with no effect in checking the progress of the disease. When at last he decided to try other means, the growth was very nearly inoperable and the chances of cure exceedingly slender.

Conclusions.—I think we are already beginning to see the evil effects of the too optimistic reports as to the value of the X-ray in cancer. A year ago, in a paper read in this very room, 50 per cent. of cures were claimed and the use of the X-ray was advocated as a substitute for operation.

Pusey and Caldwell,* in their carefully reported series of cases state that of 27 cases of superficial epithelioma, 21 or 77.7 per cent. are, as far as can be told from present condition, cured. Yet, only 7 were well over eight months and only one as long as fifteen months.

A careful review of all the reported cases of cancer treated by the X-ray, together with a personal experience and observation of more than 100 cases of various forms of malignant tumors, have served to confirm and emphasize the convictions already expressed.

1. The use of X-ray in cancer should be limited to recurrent and inoperable cases, with the sole exception of small superficial epithelioma of the face. Even here, I believe, the results of excision will prove to be better and more lasting, save in the proximity of the eyelids and nostrils.

2. It is most misleading to report as cures, cases in which malignant tumors have merely disappeared under the influence of the X-ray, since speedy return is the rule rather than the exception.

3. At the present moment there is no evidence to prove that any permanent cures have been obtained, save possibly in the case of rodent ulcer.

Aniline Poisoning.—Aniline oil exerts its poisonous influence, says A. WRZOSSEK (Friedr. Bl. f. gericht. Med., Vol. 54, No. 6), especially upon the blood and central nervous system in both man and animals. The portals of entry may be the lungs and alimentary tract as well as the uninjured skin, while excretion occurs chiefly through the urine, in part as such, in part as paramedophenol. Symptoms of intoxication, such as paresis, complete paralyses, convulsions, tetanus and trismus point to an involvement of the nervous system, while cyanosis, jaundice, hemo- and methemoglobinuria indicate breaking down of the red cells. Anatomical lesions are few and not characteristic.

*Pusey and Caldwell, 1903.

ABDOMINAL VERSUS VAGINAL HYSTERECTOMY.*

BY JOHN B. DEAVER, M.D.,

OF PHILADELPHIA, PA.

CANCER of the uterus is the most insidious and deadly malady of the female genital tract that the surgeon is called upon to treat.

Carcinoma in the female occurs more frequently in the uterus than in any other organ or part of the body and affects the cervix in about ninety per cent. of the cases. Unfortunately, many of the women afflicted with this disease suffer from symptoms ill defined, free from pain and with but little discharge until the growth has become so extensive as to involve the broad ligaments, the bladder or the vagina. For this reason, viz., the absence of leucorrhea and pain, the family physician is often unaware of the real nature of the disease in question until all hope of successful surgical intervention has gone. It cannot be too strongly impressed upon the general practitioner that irregular bleedings from the uterus, whether before, during or after the menopause should be viewed with suspicion and thoroughly investigated. No feelings of delicacy should prevent an inspection of the cervix and palpation of the uterine body, nor a fear of consequences deter resort to curettage in suspected cases with examination of the scrapings for malignancy.

A negative finding by the pathologist should be accepted with great reserve and not allowed to controvert unmistakable clinical symptoms, especially in a woman approaching or past the menopause.

I emphasize the latter because, as is well known, epithelioma rarely begins until after the childbearing period. Many of the cases of supposed hemorrhagic endometritis, with a malignant family history, would be better for a complete hysterectomy. It is the practice of the writer to do a complete removal of the uterus in hemorrhagic endometritis under the circumstances referred to. The question of removal of normal ovaries with the uterus need only be considered when the patient is comparatively young and the disease confined strictly to the uterus and is in its incipency, when it is the writer's practice to leave one or both.

In cases of hemorrhagic or hypermetrophic endometritis with foul smelling discharge curettage should be practised and the findings examined microscopically. A negative finding by the microscope is not to be considered as an argument against the value of the same as an aid to diagnosis, merely indicating that the curette may have escaped the cancer area or that the latter was situated within the uterine muscle.

In discussing the operative treatment of carcinoma of the uterus we must remember that the surgeon too often does not see the case in the early stages, and must decide whether an operation is feasible and what the chances of eradication of the growth will be.

*Read before the American Association of Obstetricians and Gynecologists, Chicago, September, 1903.

The cervix is the most common site of cancer, is usually squamous celled, and in the beginning is essentially a local process, with a hard and indurated cervix and with papillæ elevated from the mucous membrane. As these papillæ increase and enlarge the cauliflower-like growth so often felt, becomes evident. Ulceration and necrosis follow and the crater-like condition, also too well known, may be felt. In the latter stages the vaginal vault becomes implicated, the broad ligaments, the uterus, the bladder and the rectum involved and of course radical treatment can be of no particular use.

To the surgeon the question must always be answered, whether the excision of the cancer area can be performed by section through normal tissue. Palliative measures for the relief of the discharge, the bleeding, or the pain are better done by local measures than by the use of the knife.

To determine the indications for operation a most careful bimanual examination is necessary. If the uterus is adherent and fixed in the pelvis, the broad ligaments extensively infiltrated and the vaginal vault involved, operation is inadvisable. In my judgment the removal of the greater part of the vagina is inadvisable. Cases where there is such involvement of tissue as to require so extensive an operative procedure do much better by thorough curettage and cauterization, repeated if necessary. Recurrence will surely occur in this class of cases and when the radical operation has been performed new channels for the extension of the cancer are opened up. I have found that the pain consequent upon the recurrence of the growth, following late and extensive operation is greater than in those cases curetted and cauterized.

It is always difficult, however, to decide accurately the extent of the growth, especially in cancer of the cervix, and therefore where reasonable doubt exists an exploratory operation can be decided upon, and the radical operation performed as being the most conservative, whether the carcinoma is located at the cervical or at the fundal end. In the early stages a complete removal of the uterus, broad ligaments and the lymph channels in the latter, should guard against recurrence with reasonable security.

The decision as to the operation, whether to perform the ablation by the vaginal or by the abdominal route will depend, in the early stages, upon the particular predilections of the operator. Personally, I would strongly oppose vaginal hysterectomy for carcinoma of the cervix uteri, except in the presence of obstacles necessitating such a course. For instance, a very stout abdomen, nephritis, or old age. It is the practice of the writer to do a complete hysterectomy by the abdominal route in fundal as well as in cervical carcinoma. The vaginal operation offers no advantages over abdominal section, when the latter is properly and intelligently performed, and suffers from the imputation of being an incomplete operation, dangerous to the ureters

and liable at any time to give rise to severe secondary bleeding.

The abdominal operation offers an increased space for necessary manipulation, greater security against hemorrhage from a better exposure of the vessels and lessens the risk of injuring the ureters. The field of operation can be kept constantly in view by the Trendelenburg position and gauze packing, keeping the intestines out of the way of injury, and most important, the ability to better avoid infection. In abdominal hysterectomy we are better able to keep beyond the area of diseased tissue, a larger portion of the broad ligaments together with their lymph channels can be excised and individual glandular enlargement noted and removed.

The ever-present danger of injury to the ureters is not so likely to occur in the abdominal route on account of the better exposure of the structures. Expert operators have occasionally severed the ureters and the introduction of catheters makes any pelvic operation safer, yet I confess I have never introduced them for this purpose.

It is usually claimed for abdominal hysterectomy that a thorough dissection of the pelvis can be made with the removal of the infected glands. The lymphatic system of the uterus consists of a rich network of vessels, those from the vagina and lower portion of the cervix following the uterine vessels to glands at the bifurcation of the common iliac arteries, usually three in number, and thence pass upward. The lymphatics from the body of the uterus anastomose with those of the cervix uteri, travel downward to the deep inguinal glands by way of the round ligaments and pass through the utero-ovarian ligaments emptying into the lumbar glands. Yet, with this abundant lymphatic supply, carcinoma of the uterus spreads by continuity of tissue more readily and rapidly than through lymphatic metastasis.

I do not believe that the necessity exists to dissect out the iliac glands, as the additional mortality from operation is not repaid by lessened recurrence. Such enlarged glands as I have removed have been found to be inflammatory and not malignant, and in the event of cancer of these iliac glands the case has become incurable by reason of extensive infiltration of tissues adjacent to the uterus.

Extension downward into the vaginal epithelium, forward into the bladder and backward to the rectum, is much more common than metastasis into the pelvic glands. Epithelioma of the vagina is sometimes overlooked as a point of metastasis or implantation, as the diseased area frequently resembles an excoriation, such as could have occurred in the preparation for operation. Extension into the bladder may be unrecognized, except by means of a cystoscopic examination.

In performing abdominal hysterectomy for

carcinoma I first curette the cancer area, and cauterize with pure carbolic acid, and then cleanse the vagina thoroughly. It may be necessary in some cases where oozing persists to tightly sew the cervix, if the cautery fails to check such bleeding. I do not make a median incision in the abdomen, but prefer to incise through either rectus muscle close to the median line, thus avoiding hernia, one of the so-called disadvantages of the abdominal route. In performing hysterectomy I use the usual technic and methods of others, with possibly a few variations. After removing the uterus the bleeding edges of the vagina are whipped over by a lock suture. Gauze drainage is introduced into the vagina from above downward and allowed to project slightly into the pelvis when the peritoneal flap from the anterior surface of the uterus, which carries the bladder with it, is brought over the projecting gauze and stitched to the posterior wall of the vagina; in this wise completing the operation as an extraperitoneal one. The abdominal wound is closed by tier suture.

The cautery knife of Downs is used and extolled by a few operators, first, because it renders the operation bloodless and secondly, that its ultimate results are presumably better in carcinoma cases. I have always been satisfied, however, with my results by the use of suture and ligature and those cases calling for the cautery to destroy tissue are not ones adapted to radical operation. I might add that a multiplicity of instruments, awkward to handle and which tend to make a complicated out a simple operation, is to be deprecated. The more ideal results obtained in delicate operative procedures often depend upon a simplicity of technic, few instruments and the skilful use of the gloved fingers.

Cancer of the fundus of the uterus is usually an adenocarcinoma and in the early stages the diagnosis depends in a great measure upon the microscope.

The prognosis in these cases is much more favorable than those of the cervix, perhaps 75 per cent. of operations performed early resulting in cure with freedom from recurrence. Such results are due to the slowness with which lymphatic metastasis occurs and to the position of the growth, far removed from the vagina, bladder and rectum. Lubarsch offers the explanation that in cancer of the uterus the epithelial cells are quite large and cannot easily enter the lymph radicles.

Cancer of the body of the uterus requires complete hysterectomy and in the early stages may be removed through the vagina.

The Hemoglobin and Corpuscular Content of the Blood of the Newborn.—It has been found by A. O. M. FERSEN (JOUR. OF PHYSIOL., Dec. 14, 1903) that the blood of the infant at term contains a high percentage of hemoglobin, 110 to 115 per cent.; shows a large increase in the erythrocytes with a mean of 6,047,000 per cm.; a well-marked leucocytosis, 18,000 per cm., and an absolute and relative increase in the lymphocytes.

THE OCCURRENCE OF TÆNIA NANA IN TEXAS (THE FIRST, OR, AT LEAST, THE SECOND, REPORTED CASE IN NORTH AMERICA).*†

BY JOHN T. MOORE, M.D.,
OF GALVESTON, TEXAS;

ASSOCIATE IN CLINICAL MEDICINE, UNIVERSITY OF TEXAS, MEDICAL
DEPARTMENT; AND SURGEON G. H. & H. RV., GALVESTON.

I TAKE this opportunity of presenting to this Association a case that is of rare occurrence in this country.

On Aug. 2, 1902, a section foreman, who works for the Galveston, Houston and Henderson Railway, consulted me for a severe diarrhea, great weakness, and cramps in the abdomen. He was given a diarrhea mixture and asked to return in case he was not relieved. He came back on August 4, stating that he was no better. I suspected from the history that he was suffering from amebic dysentery or some intestinal worm and asked him to go to the infirmary where he could receive the proper care and have the stools examined. I gave instructions to save all the stools passed and to examine carefully for all intestinal parasites and their ova.

Dr. J. R. Elliott, interne at St. Mary's Infirmary, to whom is due the credit of first finding the ova, reported that he had found the ova of some tapeworm that he thought fit the description of *Tænia nana*. We went over the examination very carefully together and soon became convinced that we had the ova of *Tænia nana*. I ordered an anthelmintic given and instructed them to save everything passed. Much time was spent in washing the stool through a muslin cloth, but without finding anything. I now adopted the plan of putting small quantities of the fecal material in a clear glass beaker filled with water. We were soon rewarded by finding pieces of the worm. We washed quite a good deal of the material, hoping to find the whole worm, or at least the head, but were unsuccessful.

Fig. 1.



Hymenolepis nana (x 18) (Leuckart).

I submitted specimens to Dr. C. W. Stiles, chief of the Division of Zoology, Washington, and Dr. A. J. Smith, Professor of Pathology, University of Texas, for identification. They very promptly verified our diagnosis of *Hymenolepis* (*Tænia nana*), as shown by their notes, which I here publish.

Washington, D. C., Aug. 28, 1902.

Referring again to your letter of Aug. 9, I would state that the specimens have been stained and mounted. Unfortunately, the material is in a poor state of preservation, so that it was impossible to make any very minute observations upon it. Nevertheless, sufficient

*A preliminary note on *Tænia nana* in Texas was published in the University of Texas Medical, April, 1903.

†Read before the State Medical Association, April, 1903, San Antonio, Texas.

was seen to lead me to believe that you are safe in classifying the tapeworm as *Tenia nana*, or, according to the more modern classification of tapeworm, as *Hymenolepis nana* (Siebold, 1852).

C. W. STILES.

Galveston, Texas, Sept. 10, 1902.

The specimen of tapeworm links sent me to-day, with request to confirm or correct your identification as *Tenia nana*, has been examined.

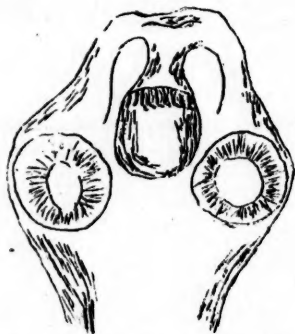
I am confident of the correctness of your diagnosis.

The specimen is extremely rare, and its occurrence here should be reported for record. Very sincerely,

ALLEN J. SMITH.

Case.—T. O'C., section foreman in G., H. & H. yards. Residence, Galveston; single; age thirty-five years; born in Ireland. Family history.—Father died at age of sixty-eight years; mother died at about the same age. Previous health of both parents good. Four brothers and four sisters living and in good health. Personal history.—Drinks beer and gets drunk now and then. Smokes tobacco. Previous residence.—Came from

Fig. 2.



Head of *Hymenolepis nana*, with retracted rostellum (x 100) (Leuckart).

Ireland to Sedalia, Mo., in 1879, passing through Boston. He lived at Sedalia eighteen months, working on the railroad tracks and in the yards there. From Sedalia he came to Texas, stopping first at Laredo, thence to Waco, Dallas, Longview, Palestine and San Antonio. He worked at Cleburne, Texas, four or five months during 1882, and at Houston most of 1883. From 1883 to 1891 he was working at Galveston or in that vicinity. In 1892 he worked on the Galveston jetties. He worked on the Santa Fe Railway, near Arcola, Texas, during 1893. In 1894 he was working on the Alta Loma pipe line, the line furnishing Galveston her water supply from artesian wells 18 miles away. Worked on City Railroad during 1885; after this he went to Houston for three years, thence back to Galveston in 1900 where he has since lived. During all of this time he says that his health was perfect. Previous diseases none. Present disease.—Two months before entering hospital, which was on Aug. 4, 1902, he felt feverish, especially during the mornings and had considerable headache at times. He would be

well for two or three days and then get sick again. Appetite was good and bowels regular during this time. One week before consulting me (July 28, 1902), he was taken with a severe diarrhea. The bowels would move eight or ten times during the day and as often during the night. There was considerable pain in the belly about the umbilicus. He passed much blood and mucus; appetite poor. He complains now, Aug. 3, of pain in belly, diarrhea, and great weakness. Present condition.—He is a tall man, height 6 feet, weight about 150 pounds, rather sparsely built, temperature 101° F., pulse 110, respiration 18. Heart and lungs normal. Liver and spleen a little enlarged. Some tenderness over stomach and abdomen. Some intestinal parasite was suspected and he was advised to enter the hospital, which he did Aug. 4, 1902. The blood examination for malarial parasites was negative. Aug. 5.—The patient passed a very restless night. The bowels moved about 20 times during the past twenty-four hours. The stools were examined by Dr. J. R. Elliott who reported finding the ova of some intestinal worm, probably *Tenia nana*. I ordered the following given:

R Olei resin Aspidii.....I dram
Ext. Kamalæ Fld.....I dram
Ext. of Kramerie Fld.....½ dram

To be taken at 9 A.M., and followed by one ounce of castor oil.

Aug. 8, temperature normal and patient feeling well. He insists upon going out. March 22, 1903, I saw the patient to-day and he says that his health is fine. He has not been sick since leaving the hospital.

Historical.—The parasite was discovered by Bilharz in 1851 in the intestine of a young man who died of meningitis. The worm was found in great numbers. A description was given by Von Siebold and Bilharz a little later. Leuckhart, afterward gave a complete description from specimens given him by Bilharz. Four specimens of this *tænia* are found in the collection of worms in the College of the Faculty of Medicine, in Paris. They had been given to Dr. Davaine by Burguières.

Hellich in 1885 obtained some of these worms in a child seven years old. This was the daughter of a barber. She was given male fern and passed a *Tenia solium*, a few *Oxyuris vermicularis*, and about 50 *Tenia nana*. Other doses of this drug were given and in five successive times she passed 250 of the worms. Leuckhart received some of these specimens and identified them as *Tenia nana*.

There are specimens to be found in the museum of Orfila said to have been given by Prof. Dokitch in Sept., 1885, secured while traveling in Servia.

In 1873 Spooner found a small worm in the United States which he thought to be *Tænia nana*. The specimens were given to the College of Physicians of Philadelphia. Leuckhart is disposed to think the specimen was *Tenia flavopunctata*. If this was *Tenia nana* then it was the first case occurring in North America.

Geographical Distribution.—This tænia has been found in many parts of the world. Bilharz discovered the parasite in Cairo, Dr. Haley found the worm in a seven-year-old child in Belgrade.

Specimens were obtained from Serbia in 1885. Spooner thinks he found the tænia in the United States at Philadelphia. Grassi says this is a very common parasite in Sicily. He secured specimens of the worm from two Sicilians. Ransom observed *Tænia nana* in England. It is known to exist in Lombardy (Grassi, Comini, etc.); Piedmont (Peroncito), Tuscany (Sonsino), and Sicily (Grassi and Calandruccio). Grassi found it in Marseilles, Zograph found it in Russia and Mortens in Germany. Lutz found it in two little girls in Brazil. Wernicke and Blanchard found the worm in the Argentine Republic.

My case evidently contracted the parasite here in the vicinity of Galveston. There were two men, working on the section with this man, who had diarrhea of the same character, but I was unable to secure feces for examination. I feel convinced, since finding *Tænia nana* in this man, that the other two were also infected.

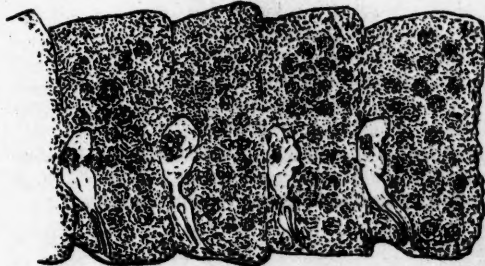
Dr. Stiles writes me that he has recently found

Gravid segments transformed into a sac full of clear, round, or oblong eggs which are surrounded by three shells; internal shell occasionally with a small knoblike structure at each pole. Larva a cryptocyst or a staphylocyst.

Type Species.—*Tænia flavopunctata* (*Hymenolepis diminuta*).

Synonyms.—*Hymenolepis* Weinland, 1858; *Diplocanthus* Weinland, 1858 (not Agassiz, 18, fish); *Lepidotrias* Weinland, 1858; *Diplocanthus* Cohn, 1899 (misprint).

Fig. 4.

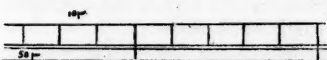
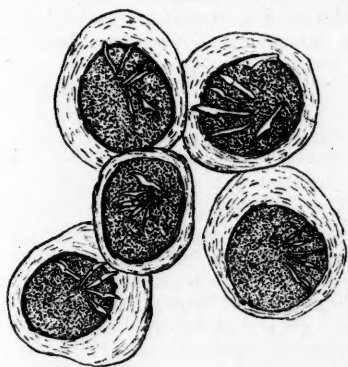


Segments of *Tænia nana*. Drawn by Dr. A. J. Smith (camera lucida).

For list of species and bibliography see Blanchard, 1891, Hist. zool. et med. des T'eniad'es du genre *Hymenolepis*, Paris, 112 pp., 22 figs.

The Dwarf Tapeworm—*Hymenolepis nana* (Siebold, 1852; Blanchard, 1891).

Specific Diagnosis.—*Hymenolepis strobila* attains 10 to 40 mm. in length, and 0.5 to 0.9 mm. in breadth; composed of about 150 to 200 segments. Head subspherical, 0.25 to 0.33 mm. in diameter; rostellum thick retractile, 100 μ long, 80 to 90 μ broad; hooks 20 to 30 in number, 14 to 18 μ long, and arranged in a single row; suckers lobular, 90 to 105 μ (according to some authors to 200 μ) in diameter. Unsegmented neck quite long, not distinctly defined from head and about half as broad. Anterior proglottids very short, scarcely distinct; those following become gradually longer and broader, always remaining broader than long, attaining 0.14 to 0.30 mm. in length, by 0.41 to 0.92 mm. in breadth. Vitellogene gland globular. Only about 100 eggs found in gravid segments; eggs globular to oval; outer envelope 30 to 60 μ ; inner envelope 16 to 28 μ , presenting at each pole a more or less conspicuous mammillate projection provided with filamentous appendages; onchosphere 16 to 22 μ by 18 to 20 μ in diameter; hooks of onchosphere 10 to 14 μ long.



Ova of *Tænia nana* (from crushed ripe segment). Drawn by Dr. A. J. Smith (camera lucida).

four cases in Georgia and one of his assistants has found another case in an asylum in Washington.

The parasite is evidently much more widely distributed than we have heretofore thought.

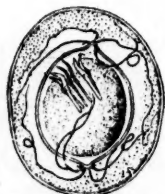
Generic and Specific Diagnoses.—Genus—*Hymenolepis* Weinland, 1858.

Generic Diagnosis.—*Dipylidiinae*: body small, filiform; head small, rostellum retractile, well developed and armed with a crown of 24 to 30 small hooklets; or rudimentary and unarmed; suckers usually unarmed. Neck long; lateral border of strobila has serrate appearance much like the toothed edge of a saw blade. Genital pore single, unilateral, on left margin. Testicles usually three to each segment, two on right, one on left side.

Synonyms.—*Tænia nana* von Siebold, 1852 (not P. J. van Benden, 1861); *Tænia Egyptiaca* Bilharz, 1852; *Diplacanthus nanus* Weinland, 1858; *Tænia* (*Hymenolepis*) *nana* Leuckart, 1863; *Tænia murina* Dujardin (not Gmelin, 1789).

Description of Specimens.—Fig. 4 shows four segments in which it is seen that the genital opening is on the same side as the segments. These segments are almost far enough toward the tail

Fig. 5.

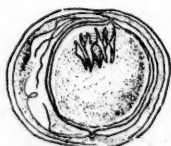


Egg of *Hymenolepis nana*, drawn by Brayton H. Ransom, Division of Zoology, Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

end to contain mature ova, as one is seen at *a*. Owing to the specimens being in a poor state of preservation no minute observations could be made, but one can make out the remnants of the male genital organs which are seen in the drawing. The immature ova have filled the uterus and make it conform to the shape of the segments.

The Ova.—The mature segments which contain from 20 to 30 ova were carefully studied. When the ova are first encountered Fig. 3 gives a good idea of their appearance, the hooklets of the embryos being seen without any difficulty at all. The interval between the outer and inner shells is seen upon very close observation to be made up of a substance which is quite clear, but running through it and apparently coming from what may be termed the poles are a number of filaments. These are made out with great difficulty. Fig. 5 shows this quite well. Lying within the inner shell is the embryo which has six hooklets in most cases, but quite a number of ova were seen

Fig. 6.



Egg of *Hymenolepis nana* (38 x 31 μ) (original).

having only five due probably to their being obscured by the others. The average for a number of measurements was: outer shell 40 by 31.9 μ ; the inner shell 29.2 by 26.6 μ . The hooklets which are shown in the ova measured from 10 to 13 μ in length. Fig. 7 shows a hooklet enlarged.

Pathological Significance.—It is not known definitely how the infection is gotten, but from

the great number found in the intestines it has been suggested that the ova are taken into the stomach with water or vegetables. It is not my aim to discuss this phase of the subject here but it is quite desirable that some one discover the means of infection. This parasite has been found in large numbers in the small intestine and they have been known to pass through the ileocecal valve. Thousands of these worms may inhabit a single intestine.

The symptoms may be divided into two main groups: (1) Intestinal; (2) nervous.

1. **Intestinal.**—From the irritation of the mucous membrane of the intestine there is apt to be loss of appetite, diarrhea, alternating with constipation, colicky pains in the abdomen and stomach, and great nausea.

2. **Nervous.**—The nervous symptoms are headache, disturbance of vision, dizziness, melancholia and in many cases attacks of epilepsy. Where only a few parasites are present there may be no symptoms at all, but if the worms are numerous the symptoms are apt to be of a severe character. Anemia follows later with its train of symptoms. One is somewhat at a loss to account for such severe symptoms where so few worms are present, but, as they rapidly disappear upon ridding the patient of the worms, the parasite must be responsible for them. They must be caused by

Fig. 7.



Hook from embryo (enlarged) (original).

the combined irritation to the intestine and the liberation of toxins. The predominant symptoms in my case were obstinate diarrhea, cramps in the abdomen and limbs, headache, and great weakness. One dose of the anthelmintic completely relieved him.

Diagnosis.—The diagnosis is readily made by examination of the stools microscopically. The ova are easily recognized.

Treatment.—Male fern is the best drug to use for their expulsion. One dram of the oleoresin of male fern, taken after a fast, and followed by an active purge is usually all that is needed. Thymol and santonin are said to be of no value.

I am very much indebted to Dr. Charles W. Stiles, chief of Division of Zoology, for his identification of the parasite and for the generic and specific diagnosis and for his aid in the study of the ova and the segments; and to Dr. A. J. Smith for his assistance in the preparation of drawings and his assistance in many ways. Also to Mr. B. H. Ransom, Washington City, for his excellent drawing of the egg.

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TWO ADVANTAGEOUS PROCEDURES IN ANESTHESIA WORK: REPORT OF CASES.

BY VICTOR C. PEDERSEN, A.M., M.D.,
OF NEW YORK.

In presenting the following two procedures in anesthesia work, no claim to originality is made, excepting such as may be concerned in the facts that the author never has seen them described before and never has seen them employed previously, but had to work them out for himself in the course of active experience as a specialist in anesthesia. They are published only with the hope that some one who has not learned of them before may profit by them.

The first procedure is an advantageous means of administration of the nitrous oxide-ether sequence. Strictly speaking, it is a new sequence in which the series is nitrous oxide, then nitrous oxide and ether combined and finally ether alone. The purposes of the technic are to avoid producing any gas cyanosis, to induce ether narcosis very slowly without exciting any reflexes, such as coughing, and finally to obtain a full degree of ether narcosis with the utmost safety and convenience to the patient.

A fourth result, which is incidental rather than essential, is great economy of gas, since by this method the average patient goes completely under this sequence of these anesthetics with a half-gallon instead of a full gallon of gas.

The details of applying the technic are as follows, so far as the Bennett apparatus, which is the one I prefer, is concerned. Exactly similar stages of the procedure are possible with any of the other good ether-cones now on the market.

First.—The gas-bag is filled to its half-capacity for the average patient, or to a fuller degree if there be any reason to suspect necessity for using a larger quantity. The ether chamber is as usual charged with ether, from a half-ounce to a full ounce in quantity, likewise in accordance with the characteristics of the patient. The assembled cone is now placed upon the patient's face and the rubber face-cushion is adjusted to fit as well as possible. With the valves of the gas-chamber open, the patient is requested to breathe; and as soon as he has shown himself to understand what is required of him, and the face-piece has been seen to fit air-tight, the gas is turned on.

Second.—After from two to four full respirations have been taken with the expiration-valve of the gas-chamber open, this is closed so that "rebreathing" is therefore initiated.

Third.—The patient is now allowed to take from two to four respirations in this manner, at the end of which he is usually sufficiently under gas-narcosis for the next step, although as a rule not in the smallest degree cyanosed by the gas.

Fourth.—This step consists in very slowly turning on the ether, at a rate so deliberate that it requires from four to eight minutes to pass from "air" to full "ether." During this stage it will be noticed the patient is receiving nitrous

oxide and ether together thus constituting the second anesthetic combination of the sequence already outlined.

Fifth.—While this combination is being administered the quantity of ether in the ether-chamber is judiciously replenished and, if necessary, likewise increased, so that usually at the end of the time stated the patient has begun full, regular and stertorous ether-respiration. This degree of narcosis is commonly reached without any reflexes or disturbances whatever. *Cyanosis if it appears at all, is not of the blue-gray hue of gas-, but of the reddish-blue image of ether cyanosis.*

Sixth.—If there is any delay in the appearance of the normal ether respiration, I continue the nitrous oxide ether combination of the series until it does develop. The additional time required, in such cases, for the induction of full ether-narcosis is usually very brief.

Seventh.—When all the symptoms of complete ether-anesthesia are present, the gas-chamber and bag are removed and the ether-bag is attached to the ether-chamber and the patient is ready for operation.

Comments and Results in Practice.—I have now had perhaps 150 patients in private and in public practice in my official position at the Roosevelt and at Polyclinic hospitals, whom I have anesthetized in precisely this manner. Of these 150 only one has shown the usual *gas-cyanosis* in more than a very moderate degree, but he was alcoholic and took the anesthetic only fairly well throughout, showing, as most of these subjects do, great readiness to become cyanotic under any anesthetic.

I have likewise had only two or three patients who coughed at all during the introduction of the ether. Only one patient was able, after convalescence, to tell me that she perceived the odor of the ether, of which I have great doubts, founded on her behavior in going under. Since applying this method, the majority of my patients have had very much less mucus in the nose, throat and trachea and the majority of them have shown distinctly less after vomiting. The benefits of this mode of administration lie in the fact that the induction of the ether narcosis is much more deliberate, regular and steady and that, therefore, the concentration of the fumes is more carefully determined with reference to each patient's peculiarity; which is an exceedingly important detail.

When I was taught as a hospital interne, the gas-ether sequence of anesthesia, the method practised was to induce profound gas-anesthesia to the point of distinct cyanosis and then to turn on the ether more or less rapidly before the patient had time to recover from the gas. The result was a great advance over the old mode, but still had the objection of very frequently causing coughing, bronchorrhoea and ether-excitement, including considerable muscular resistance simply because the ether was necessarily concentrated. Of my series of cases, very few indeed

have shown muscular resistance; and such as have, did so to a very insignificant degree, with the exception of one very alcoholic subject (the same individual just spoken of as having shown more or less gas-cyanosis).

"I feel that in presenting this rather simple and sensible procedure to those who are working in the field of anesthesia, I have offered a very valuable suggestion, since the experience I have had with it seems to be a criterion.

Reports of Cases.—It seems well to outline several cases, which illustrate the satisfactory manner in which this technic operates in actual practice. These histories are copies of notes kept of many of my cases. The reports of the post-operative conditions were very kindly made by the nurses, at the permission of the operating surgeons in great courtesy, which is sincerely appreciated, or by the operators themselves.

Case I. D.—History: Male; white; seventy-five years old; retired merchant; no previous anesthesia; no stigmata of alcoholism; about five feet eight inches tall; weight, 110 pounds; of fair development for his age; of poor nutrition; of pale complexion and in feeble general health.

Physical Examination Prior to the Anesthesia.—(1) *Circulatory System:* Small intermittent pulse, 80 beats to the minute; general arteriosclerosis; veins negative; considerable pallor and anemia. (2) *Respiratory System:* Atrophic senile rhinitis; chronic nasopharyngitis; lungs normal to auscultation in front and on the sides, age considered; breath-sounds slightly puerile; expiration prolonged; no cough; stomach empty; rectum loaded; urine not reported; no ante-operative drugs; slight fear.

Pathological Condition.—Obliterating endarteritis with secondary gangrene of one toe. *Operator,* Dr. John A. Bodine. *Operation.*—Amputation of the toe; duration, twelve minutes; Bennett inhaler, using a half-gallon of gas with 1½ ounces of ether net, measured; no anesthesia excitement; dorsal posture; complete relaxation; no mucus; very slight sweating; no laryngeal spasm; moderate exposure during operation; no shock; slightest hemorrhage. *Recovery.*—No after-vomiting; within eight minutes conjunctivæ sensible and conscious within thirty minutes so as to speak; no postoperative stimulants.

During the anesthesia his pulse varied between 80 and 90 and was of better character than previously. His respiration was 36 and normal; his conjunctival reflex disappeared completely. The reflex of his pupil to light was constantly present and the size of the pupil was moderate in a room of only fair illumination. No movements whatever were made excepting a few swallows early in the anesthesia. His color was better during the anesthesia than either before or after. His general condition remained excellent.

The technic already described was followed exactly in inducing the anesthesia; only two respirations were allowed with the expiration-valve of the gas-chamber open, and only two more with it closed, after which the ether was begun.

Within four minutes from the beginning the conjunctival reflex was sluggish and stertor was appearing. In two minutes after this time the operation was begun.

The nurse at the permission of the operator, reported the next day by letter, that the first twenty-four hours passed without incident and that during this time he had passed his urine voluntarily. No examination of the urine postoperatively was reported.

Case II. S.—History: Male; white; forty-five years old; merchant; no previous anesthesia; moderate regular alcoholic habit; five feet six inches tall; weight, 210 pounds; of excellent muscular development, nutrition and general health; complexion ruddy.

Physical Examination.—Entirely negative excepting the urine which contained blood, pus and a trace of albumin due to the blood; slight cystitis; no anteoperative drugs; no fear. *Operator,* Dr. E. L. Keyes. *Operation.*—Lithotripsy; duration twenty-five minutes; Bennett inhaler; two-thirds of a gallon of gas and 5½ ounces of ether were used; no anesthetic excitement; dorsal posture; complete relaxation; moderate mucus; very great sweating; no laryngeal spasm; very moderate hemorrhage, gentle operative manipulation; no exposure during operation; no shock; no postoperative stimulants.

During the operation his pulse remained constant at 84; his respiration varied from 30 to 36; his conjunctival reflex was abolished. The reaction of the pupil to light was active and the size of the pupil small in a very brightly illuminated room. He moved very slightly early in the operation when the instrument was first introduced, but was quieted by increasing the quantity of ether. His color was bluish for a time, due to swelling of the tongue and was corrected by pulling the tongue forward with the forceps. No gas-cyanosis occurred. No excitement in going under of any description.

Recovery.—In three minutes his conjunctival reflex was present and in six minutes he vomited once; he vomited again on the way to his room, and once after arrival there. The nurse reported by postal three days afterward that his recovery from the anesthetic was perfect. The quantity of ether used was due to the facts of his alcoholic habits in his club-life, of his great physical size and of the amount of air necessary through the upper valve in order to keep his color good. Urine normal in a few days.

Case III. G.—History: Female; white; twenty-seven years old; housewife; previous anesthesia, none; moderate regular alcoholic habit; five feet six inches tall; heavy build; weight, 185 pounds; excellent development, nutrition and general health; ruddy complexion.

Physical examination prior to operation negative; no drugs given; very moderate fear. *Operator,* Dr. J. D. Nagel. *Operation.*—Curetting, dilatation and incision of the internal os uteri for sterility, secondary to stenosis; duration, sixteen

minutes; Bennett inhaler; a half-gallon of gas and $2\frac{3}{4}$ ounces of ether, measured; dorsal lithotomy posture; absolute relaxation; very moderate mucus; moderate sweating; usual exposure during the operation. Three respirations were allowed with the expiration-valve open, which was then closed and the ether introduced. After a few respirations roars of true laughter set in, due to the gas, but not associated with any gas-cyanosis whatever, which lasted until the ether stertor appeared; that is, about two minutes. During the laughter the patient shook her whole body, especially the limbs, but was not muscularly rigid, nor at all combative; no restraint. Deep anesthesia was present in about three and one-half minutes and was accompanied by very moderate cyanosis which disappeared as soon as the upper air-valve was opened. It had none of the gray-blue characters of gas-cyanosis. The upper air-valve was kept open and no further cyanosis appeared. Some laryngeal spasm in the form of inspiratory stridor was present during the first few minutes but rapidly disappeared.

During the operation the behavior of the patient was entirely without incident. After removal of the cone hiccoughs began within two minutes and vomiting associated with hysterical weeping in six minutes. The nurse reported by letter in about a week that after returning to the ward little or no vomiting appeared and that recovery from the anesthesia was complete and uneventful. No report of the postoperative urine. During the operation the patient's respiration reached 50 to the minute varying between that and 36. Pulse normal at about 100. There was no postoperative medication required.

Case IV. S. L. F.—History: Male; white; forty-five years old; merchant by occupation; no previous general anesthesia; very pronounced alcoholic habit, consuming a quart of whisky and other forms of alcohol in addition each day at the time of operation, as acknowledged by his wife.

Physical Examination.—Five feet six inches; medium build; poor development and nutrition, pale complexion with marked jaundice; heart, lungs and kidneys pronounced healthy by family physician, who requested me not to investigate them less the patient's irritable disposition be excited. General arteriosclerosis; no cough; stomach and rectum empty. No drugs immediately before operation.

Pathological Condition.—Atrophic cirrhosis of the liver with secondary ascites of very marked degree. Two days prior to the operation, twenty-five pounds of fluid were aspirated. On the day of the operation the abdomen was enormously distended and tense. *Operator:* Dr. R. T. Morris. *Operation:* Talma's procedure to establish anastomotic circulation between the liver and omentum and the wall of the abdomen. Bennett's inhaler; $6\frac{3}{4}$ ounces of ether (measured), preceded by one gallon of gas during a total administration of thirty-eight minutes; dorsal

posture; absolute relaxation. Slight mucus; very moderate hemorrhage in the wound; profuse sweating; rapid general manipulation; moderate exposure during the work. No laryngeal spasm. *Recovery:* in ten minutes conjunctival reflex had returned and in one hour the patient was thoroughly conscious and able to converse rationally. About one week after the operation Dr. Morris informed me that his recovery up to that moment had been without incident. There was very little after-vomiting and only a very mild degree of shock. No postoperative stimulants.

The anesthesia was exceedingly interesting. Realizing that I was dealing with a very undesirable case, I took a gallon of gas, allowing the patient to expire half of it before compelling re-breathing. The ether was then very slowly turned in so that I consumed ten minutes in getting the patient under. There was no struggling whatever and no reflexes, cyanosis or other undesirable features until without warning about twelve minutes after the first gas was administered the patient's nose and throat suddenly filled with blood and mucus and deep cyanosis suddenly appeared. Breathing stopped absolutely and I thought the patient was dead of cardiac failure. During the month preceding the operation he had had at least two slight marked epistaxes. The cause of his suspended breathing appeared to be a sudden filling of the upper air passages with blood and mucus, probably from this source. I immediately opened his mouth with a gag, drew his tongue forward, swabbed out the passage and summoned Dr. Morris to the room, requesting him to institute artificial respiration while I kept the upper air passages free. I explored the larynx with my finger and was pleased to find that it was clear. Perhaps a half dozen manipulations in artificial respiration were made when the patient began to breathe again. After a few minutes his breathing was normal and the anesthetic was resumed with the mouth gag in place and the tongue pulled forward. At the end of the eighteen minutes from the outset the operation was begun and as soon as the fluid from the abdomen was evacuated his pulse, which had been 108, suddenly rose to 160. His respiration again became faulty and another epistaxis occurred, more moderate, however, than the first. It required only a swabbing out of the throat to clear the difficulty away. In a minute or two the pulse and respiration improved markedly so that they were much better than at any previous moment, and thus they continued until the end of the operation. In fact, the great improvement in this patient's condition suggested to both Dr. Morris and to myself, the advisability of evacuating the abdomen of ascitic fluid a few hours before beginning the anesthetic.

This case is mentioned to show how this new method of administering gas and ether will work even with individuals who otherwise would

present a high degree of furious excitement while going under. All things considered, his performance under the anesthetic was as good as could possibly be expected. Certainly the beginning of the narcosis was as free from trouble as possible, aside from the obstruction of his breathing with mucus and blood, which in all human likelihood depended more upon his disease and the general interference with circulation and respiration it caused than upon anything else.

The quantity of ether required, $6\frac{3}{4}$ ounces in thirty-eight minutes in administration, was really very small indeed, when one considers the quantity of alcohol in various forms the patient was consuming each day. The only ether excitement he showed was during the first twenty minutes of the recovery when he was in a state of talkativeness and profanity, but at the end of an hour was quite himself again.

The second valuable procedure in anesthesia work implied in the title, is that of the *new position of the patient for operations upon the kidney*. The usual manner of placing these patients upon an Edebohls' bag involves the crowding of the root of the neck and face more or less closely against the top of the table. I have seen cases in which this was present in so marked a degree, that it was impossible to move the head of the subject about, excepting with both hands and force enough to practically life the shoulders from the table. I have also seen the pressure so severe that the lower jaw was held rigid and pushed considerably out of its position toward the opposite side of the face.

I am convinced that such interference with the patients' air-passages accounts far more for the bad manner in which they take the anesthetic than does the anesthetic or the surgical operation itself.

One of the fundamental principles of good anesthesia work is that the head and neck of the patient shall be as fully under the control of the anesthetist as possible. The position of these kidney cases, as just outlined, totally deprives the anesthetist of this most important aid in securing a satisfactory anesthesia. It was with the purpose of correcting the difficulty that I have come upon and now invariably adopt the following very simple plan. I have had, since it first occurred to my mind, a sufficient number of cases to prove absolutely that it works perfectly and is the proper solution of the difficulty.

The steps of the method are simply these. After the patient is suitably narcotized in the dorsal position, he is transferred to the operating table, turned upon his side, and the Edebohls' bag is placed into its position. The shoulders are then raised from the table and rested upon a sand-bag reaching from shoulder to shoulder, oval in cross section, about four inches in its longest diameter and reasonably soft. This brings the pressure of the chest upon the shoulders and upper sternum, and not, as heretofore,

upon the base of the neck. When the shoulders are thus elevated free of the table the head may be moved in any direction whatever and the jaw of the patient is absolutely under the control of the anesthetist.

The technic has one objection which may, however, be readily corrected, as I will presently state. It is that the elevation of the upper part of the chest upon the sand-bag may narrow the iliocostal space and thus decrease the field of operation. My method of meeting this difficulty, is to place other sand-bags under the Edebohls' bag, thus securing a proper flexion and torsion of the chest upon the abdomen. Of the series of cases to which I have applied this technic all have followed an uneventful anesthesia with a sole exception which should not properly be mentioned with a description of the technic because I feel there is no relation between them. In this example the surgeon did not follow my suggestion to elevate the Edebohls' bag upon other sand-bags and therefore operated in a slightly restricted iliocostal space. It was on this account that in delivering the kidney his manipulations were so severe that not only did he contuse the organ somewhat but also brought about a reflex suspension of respiration which occurred in the presence of a perfectly good color and no circulatory symptoms aside from slight acceleration of the pulse. The operation was suspended, and in a moment or two without any interference whatever with the patient, respiration was resumed.

When one considers that kidney-operations are perhaps among the most dangerous attempted and that it frequently matters very little what anesthetic is employed, because any is apt to be followed by some kidney-disturbance in virtue of the other attack upon these organs, it becomes of supreme importance to so place the patient that all possible disadvantages of the anesthetist are removed.

In my experience I have proved to my entire satisfaction that this arrangement of the patient suits the elements of the proposition perfectly. Its importance lies in the fact that one never may state in advance how a given patient will accept a certain anesthetic during the operation and during the convalescence. Some authorities state that chloroform is better than ether for renal subjects, while others, on the contrary, say that while ether very frequently irritates the kidneys the character of its disturbance is usually functional, immaterial and temporary. Chloroform by these authorities is perhaps with great truth stated to be exceedingly deadly whenever it meets a kidney susceptible to it in that its effect is profound and almost organic.

I feel therefore that too much stress cannot be laid on the importance of securing freedom of the head and neck as a most important aid to the narcotizer in giving either of these anesthetics or any other anesthetic as uneventfully as the idiosyncrasy of his patient will permit.

**LABORATORY AIDS TO DIAGNOSIS FOR THE
GENERAL PRACTITIONER.***

BY VICTOR A. ROBERTSON, M.D.,

OF BROOKLYN, N. Y.

To-day the medical profession, as well as humanity at large, is greatly indebted to the many achievements and triumphs of the modern well equipped and scientific laboratory.

Anatomical laboratories for teaching and investigation have existed almost from the beginning of medical progress, but the clinical laboratory of the present time is a product of only the last thirty years. As a factor in medical education its value can hardly be overestimated. Cases of disease are now studied with the aid of the microscopist and the bacteriologist as well as the clinician. Anatomical and hygienic laboratories deal frequently with problems having no direct bearing on the practical side of medicine, but the clinical laboratory brings us in close touch with the patient and pathological materials derived from living subjects.

It is only within recent years that opportunities have been given in our medical schools, for original investigation in morbid processes, and many of our older practitioners can remember the times when advantages for such research could only be had abroad, the birthplace of these laboratories. Now their usefulness being recognized, every well-equipped medical school is provided with its clinical, physiological and chemical laboratories. There can be no dispute as to the profound influence exerted upon practical medicine in diagnosis and treatment by laboratory methods of investigation. These methods are not to be used to the exclusion of the physical examination, history, temperature, pulse, etc., but as affording a valuable means of adding to our information in any given case, and must always be taken in conjunction with all the bedside methods of diagnosis of the clinician. We must not relax in physical methods of diagnosis or fail to remain acute observers of all the objective signs of disease, and give all the findings in any given case due consideration. These aids to precision in diagnosis have been neglected to a large extent by the general practitioner, except to those who are fortunate enough to be hospital visitants.

This neglect has been due, in some cases, to indifference or disbelief as to the practical value of these methods, in others to a mistaken idea that a large amount of technical skill is required, that much time is necessary, and expensive apparatus is essential.

It is the purpose of this paper to encourage the general practitioner to conduct these examinations himself and he will soon appreciate their immense assistance in his professional work. Every practitioner is morally bound to use every means at his disposal to arrive at exactitude and completeness in diagnosis and no man should be too busy to make daily examinations of blood,

sputum, urine, gastric juice, etc. If professional duties prevent, he should avail himself of the services of an assistant qualified in laboratory methods. If the clinician could combine with his experience, mature judgment and skill in physical examination, a knowledge of laboratory technic, diagnostic errors would occur less frequently and much less discredit would be placed at the door of the laboratory diagnostician. Many unjust criticisms have been made of laboratory diagnoses, because the clinician, through his ignorance of laboratory methods has sent his material for examination contaminated to such a degree that no successful investigation could be made, or the data furnished has been insufficient. It must be understood that the microscope only reveals evidence that is complementary to the physical signs and symptoms. It is only one factor that must be correlated with other sources of information before a definite conclusion can be reached.

The general practitioner should remember that scientific completeness is not required of him in this work. It goes of course, without saying, that the intricate details of original research are too engrossing and demand more time and technical skill than a busy practitioner can afford. It does not require, however, but a moderate knowledge of bacteriological methods to discover the commoner pathogenic organisms that he meets with in diseased processes almost daily.

A laboratory could be fitted up at moderate expense in a room separate from the office, where the necessary quietness could be obtained, a hall room, provided with water and gas, would answer admirably. The most expensive part of the equipment would be a good microscope with $\frac{3}{8}$ " and $\frac{1}{6}$ " dry lenses and $\frac{1}{12}$ " oil immersion lens, and mechanical stage. A table and some shelves and racks for holding the necessary glassware, chemical reagents and staining solutions which could be modest at first and added to from time to time as occasion required. An Esbach albuminometer, a Doremus ureometer, Einhorn's saccharometer, A Thoma-Zeiss hematocytometer, Dare's hemaglobinometer or Tallquist's hemoglobin scale are necessities. An incubator, while not perhaps an essential part of the equipment at first, would soon be willingly obtained by an enthusiastic worker. An hour or two spent daily in this laboratory would be an agreeable relaxation from engrossing professional duties.

Some time ago an article appeared in one of our leading medical journals, written by Dr. E. L. Trudeau,* of Saranac Lake, in which he narrated the great difficulties he encountered in laboratory work in his early professional days in the Adirondacks. One can only admire his persistency in adhering to scientific methods of diagnosis in the face of the discouraging and limited facilities at his command in that rigorous climate. His efforts have been crowned with deserved success, as may be seen in the admirably equipped and well-organized laboratory that bears his name in Saranac Lake, N. Y.

* Read at the Annual Meeting of the New York State Medical Association, October 21, 1903.

* See MEDICAL NEWS, Oct. 24, 1903.

In this city we have at hand, at convenient stations, a suitable culture medium for all the commoner pathogenic organisms. The writer refers to the Löffler blood serum mixture, in test tubes, furnished by the Health Board. These can be carried to the bedside, hospital, dispensary and autopsy table for inoculation.

The applicability of these methods in daily practice may be shown by the following: A case of continued fever with ill-defined symptoms presents itself for diagnosis.

Osler states that all fevers extending over several days in this latitude are apt to be one of three things, tuberculosis, typhoid fever or malaria. If cough is present and a specimen of the sputa can be obtained, it is only a matter of a few moments to pick up one of the small cheesy masses met with if the sputum is tuberculous, make a smear, fix it by flaming, stain, decolorize, use contrast stain, dry, and examine, and tubercle bacilli, if found, will make the diagnosis clear. It is a matter of immense importance to make an early diagnosis of pulmonary tuberculosis before the lung has become extensively invaded, and our patient has become a source of infection to others, as our only hope of controlling this disease is in its early and prompt treatment, climatic or otherwise. Tubercle bacilli, according to Musser, are frequently found when the physical signs and symptoms would only excite a suspicion of tuberculous infection. We must not wait till our patient has become emaciated to the last degree and comes presenting signs of a cavity, with consequent fever, night-sweats and cough. Microscopical examination of the sputum, while affording confirmatory evidence of the nature of the infection in such a case, is hardly to be considered necessary.

It is also worth remembering in this connection, as illustrating the value of regular systematic examinations of the sputa of all cases of cough extending over a few weeks, that occasionally cases of tuberculosis are met with in the upper air passages, before there is any infection of the lungs discoverable by any of our methods of examination, save the microscope. The writer well remembers a case of suspected syphilis from the situation and character of ulcers on fauces and pharynx, that only a microscopical examination of the sputum afforded the clue to the correct diagnosis of tuberculosis. In this case it was some months later before any pulmonary signs of involvement could be discovered. If the examination of the sputum is negative, recourse can be had to a blood examination when either the plasmodium of malaria is discovered, or the characteristic Widal serum reaction of typhoid fever is obtained.

The Widal reaction can be made by the general practitioner if he can gain access to a laboratory for a fresh, living broth culture of the typhoid bacillus. If this cannot be obtained, a formalized dead culture may be employed. Ehrlich's diazo reaction, although present in other diseases, is of much diagnostic value, especially when found

in conjunction with negative blood and sputa examinations.

The general practitioner should familiarize himself with the recent advances made in the pathology of the blood. Blood examinations, as a method of diagnosis and rational treatment, whether medical or surgical, have, of late years, been used more frequently and have demonstrated their value beyond dispute. By hemanalysis, in various morbid conditions, we can discover deviations from the normal in the number, size, shape, and color of the red cells, the presence of nucleated red cells, an increase or decrease of certain elements of the white blood corpuscles and the presence of cell bodies not usually found in the peripheral blood. Also variations in the amount of hemoglobin and finally the presence of parasites and bacteria in the cells and in the blood stream. These pathological changes in the blood bear definite relations to various diseases that could not be distinguished by any other methods of diagnosis. Many of the anemias cannot be differentiated without a blood examination, as the pallor, symptoms and physical signs may be identical. The value of any form of treatment, in these conditions can also be obtained by systematic hemanalysis.

Simon, in a recent paper, has emphasized the necessity of examining the blood in suspected cases of lead poisoning. In 20 persons exposed to the action of lead, whose blood he examined, two only presented active symptoms, such as lead colic and wrist drop, three others had indefinite colicky pains some years before, and three complained of wrist weakness, the remaining 12 gave no signs of lead intoxication. All of these cases, however, showed the presence of basophilic granules in the red blood cells. Even in light exposures Simon found these granules, and their number was directly proportionate to the severity of the intoxication. An increase of these degenerated cells was found to precede the appearance of clinical symptoms of poisoning. A regular examination of the blood of lead workers would suggest appropriate treatment before profound intoxication occurred.

Basophilic degeneration is of diagnostic importance in all conditions in which hemolytic poisons are operating in the body and in pernicious anemia are an indicator of the severity of the disease. It is also found in malarial and cancerous cachexias and in various septic conditions.

Leucocytosis.—The phenomenon in the circulating blood known as leucocytosis, when persistent and consisting of an increase of the white blood cells, known as the polymorphonuclears, is a pathological condition. It occurs in many infections and is of great diagnostic value. In all morbid processes due to pyogenic organisms such as appendicitis, abscesses, osteomyelitis, pyosalpinx and inflammation of viscera and serous membranes it is marked and constant. Its absence in certain affections in which we would naturally expect it to occur is from a diagnostic

standpoint an important symptom. It does not occur in uncomplicated typhoid. Simon maintains that if present in a suspected case of enteric fever it is more than probable our diagnosis is wrong or some complication exists. It is absent in malaria, most cases of influenza, measles and tuberculosis, unassociated with a secondary pus infection. Its diagnostic value is seen in the consideration of cases which simulate either typhoid fever or appendicitis. A blood count enables us to differentiate. If found during the course of typhoid fever it may give us warning of an impending perforation and indicate operation and the consequent saving of our patient's life.

According to Simon, the number of leucocytes in any acute infection is directly in proportion to the intensity of the infection, and the resisting powers of the individual affected. Where no leucocyte increase occurs in a virulent infection it would indicate a lowered resisting power of the individual and be of grave prognostic import. Death from pneumonia almost invariably occurs when this phenomenon does not develop; the exception only being found in the mild infections in which it is not present.

Dr. Thomas R. Brown, of the Johns Hopkins University, has recently answered the criticisms of Dr. Deaver and others as to the practical value of this method of diagnosis in surgery. He considers its presence or absence as determining whether the surgeon in any given case is dealing with an inflamed appendix, or merely some hysterical condition, or with a floating kidney, a biliary or renal calculus. It serves as a guide to the severity of the infection; when the count is above 12,000 or 20,000, an operation is imperatively demanded; if below, the observer can wait, and by further systematic counting, determine whether the case is going on to recovery or perforation is impending. Dr. Brown further believes that no operation should be undertaken without a blood count and if a severe infection is found unassociated with a corresponding degree of leucocytosis, operative measures will be useless.

The iodine staining reaction of the leucocytes is found in many cases of toxemia and is generally associated with a leucocytosis. It is of value in the diagnosis of septic conditions and when present in a marked degree indicates a profound intoxication, and if unaccompanied with a leucocytosis would be a sign of grave prognostic import and would contraindicate extensive operative interference in pus cases. An increase of the eosinophilic leucocytes in the circulation, is found in many pathological conditions. In bronchial asthma, they are increased 10 to 20 per cent. and thus serve as a means of differentiation from cardiac and renal asthma in which they are absent.

Dr. T. R. Brown was the first to observe this phenomenon in the acute stage of trichinosis, and in the first series of cases he reported, the eosinophiles varied from 42 to 68 per cent. of all the white blood corpuscles present—an enormous

increase. Fever, gastro-intestinal disturbance, diarrhea, and muscular pain and tenderness following the ingestion of raw ham, pork or sausage, when associated with marked eosinophilia should excite a suspicion of trichinosis and a piece of the shoulder or calf muscle should be removed and examined for trichinae.

Malaria.—Many practitioners are in the habit of calling all diseases accompanied with a periodicity in the symptoms malarial, but a blood examination for the parasites in many cases would show their absence. The diagnosis of malaria covers a multitude of diagnostic errors and should never be based on the clinical symptoms alone, as the initial chills of tuberculous and pus infection have been mistaken for it.

Typical malarial intermittents are readily diagnosed, but in the atypical forms and more especially in the pernicious varieties of infection, serious errors in diagnosis may occur. In the late Spanish War most of the cases of fever proved to be typhoid, and had blood examinations been made of the infected soldiers in the Western and Southern camps the mistake of confounding this disease with malaria would not have happened. A clinical diagnosis should, in every instance, be confirmed by an examination of the blood, which may be tedious if the parasites are not abundant, but if the disease is malarial, they will be surely found; it also determines the *type* of infection present, which is of value in prognosis and treatment. Both Cabot and Ewing state that the examination of the fresh blood is the readiest method of discovering the organisms, and this is best done just before the expected chill when they have reached their greatest size. This method takes but a short time and is applicable to the bedside, office or dispensary and shows the ameboid movements of the pigmented intracorporeal forms of the parasites, with the active rapid motion of the pigment granules, together with any phagocytosis on the part of the white blood cells that may be taking place, also any of the actively motile flagellating bodies, if present, can be recognized. Its limitations have been found by Ewing to be in the study of the early small unpigmented forms, these being more readily found in the stained smears. Stained blood films, show us better than the fresh specimens the minute structure of the parasites and can be kept for reference. Several methods of staining can be used, as the organisms take readily all the basic aniline dyes. Wright's stain, described in January (1902) number of the *Journal of Medical Research*, has been found by the writer to be of great value in staining the parasites as well as the blood cells. It is durable and improves on keeping, the writer has modified this stain somewhat, by using a saturated unfiltered solution, which gives better results in his opinion.

Atypical cases of malarial infection occur more frequently in the estivo-autumnal than in the tertian types. Masked malaria, in which the symptoms are obscured by other complicating diseases, and latent malarías, which exist without

producing any appreciable symptoms, but in which the parasites can be demonstrated in the blood, are of this type. In some cases the temperature may be little above normal or even sub-normal, although the infection is a grave one.

This emphasizes the importance of routine blood examinations in individuals coming from known infected districts, as Dr. Craig, U. S. Army Surgeon, stationed at San Francisco, in a recent work on estivo-autumnal fevers, states he found large numbers of parasites in the blood of soldiers returning from the Philippines with few or no symptoms present. In the masked forms, symptoms referable to other infections such as diarrhea, acute and chronic dysentery, pneumonia, typhoid, hepatic abscess, pulmonary tuberculosis, chronic gastritis, melancholia, insanity and rheumatism were present.

Dr. Craig gives the history of a case of pernicious malaria of this tropical type in a young girl not away from San Francisco in over two years. He considered the infection might have taken place from a mosquito that had imbibed the blood of a soldier from the Philippines, with the disease, and that there is grave danger of severe malarial types of infection becoming endemic in any locality in which there are large numbers of infected subjects with tropical malaria, provided the ubiquitous *Anopheles* mosquito is present.

Malaria in children rarely follows a typical course, but occurs in masked and irregular forms, which present symptoms of fever, headache, drowsiness, vomiting and constipation, which may excite a suspicion of meningitis, or cough, rapid breathing and râles may simulate a pneumonia. The quotidian form is most common, but there is seldom a complete attack of chill, fever and sweat, the chill often being absent, or if present, so slight as to be overlooked. In the cases observed by the writer, gastro-intestinal disturbances were the most common symptoms; some slight fever, headache and drowsiness were also present. The attacks came on suddenly, sometimes when the children were at play, and in other cases at night, when in bed, and began with vomiting, followed by a watery diarrhea, headache, drowsiness and fever, which subsided after some hours, and they appeared perfectly well, until the next attack. Several of these cases had gone for a long time without recognition and showed a marked malarial cachexia. Blood examinations, in all of them, demonstrated tertian parasites in large numbers.

Puerperal Sepsis.—In cases of puerperal sepsis, we have an endometritis, which is either of the putrid or septic variety. It is a matter of considerable importance to determine which form is present, as the treatment is largely influenced by the type of infection found. In many cases the clinical symptoms will be our guide, but the only method by which we can arrive at a positive conclusion is by taking cultures from the interior of the uterus by means of a glass tube, first introduced by Döderlein. By this means we are en-

abled to know within twenty-four hours whether we have to deal with a streptococcal and dangerous infection or whether we have present merely a sapremic condition comparatively harmless. In the one case antistreptococcal serum is indicated, possibly a hysterectomy to remove the infected uterus, in the other curettage. In the former case the employment of the curette could only do harm by destroying nature's wall of leucocytes thrown out as a barrier to the further ingress of infection. It must be remembered that the lochial discharge, in streptococcal infection, may not be foul smelling, as putrid endometritis is not present. In sapremic conditions the reverse is true, the bacteriological findings are necessary to clear up the diagnosis.

In many acute cases of gonorrhea the character of the infection is self-evident but in others, especially in chronic cases, it is a matter of vital importance to discover the presence of gonococci. It is a matter of a few moments only, to make a smear, fix stains and examine for this most persistent and annoying organism. No case should be considered as recovered unless repeated examinations of the urethral secretions fail to show them present. Leucorrheal discharges, when persistent, should be examined for this organism. In purulent otitis media the character of the pus organisms should be determined, if the *Streptococcus pyogenes* or pneumococcus is found there is much liability of mastoid involvement.

The diagnostic value of the pneumococcus is now freely established and it can at times be recovered from the sputa before the physical signs of croupous pneumonia are discoverable. It will materially increase the chances of recovery of our patient, if thus early we are fully aware of the serious nature of the impending disease, and are able to conserve his energies for the coming struggle.

In malignant pustule or anthrax the *Bacillus anthracis* can frequently be discovered in the pus without resorting to cultural growth. The chemical analysis of the gastric contents obtained after a test meal by the stomach tube is of great diagnostic value and should be more used by the general practitioner. The passage of the tube is easy, requires no special skill or special training and only the unconquerable repugnance of a patient, or some morbid condition, such as aneurism or gastric ulcer, should preclude its use.

The secretory and absorptive functions of the stomach, also motor insufficiency, due either to atony or structural alterations of its walls, can readily be discovered. The gastric juice should be examined for the reaction, presence of hydrochloric acid, lactic acid, pepsin and rennet ferments, products of starch digestion, mucus, bile, blood, pus and intestinal parasites. Pieces of the gastric mucosa may be occasionally found after the stomach washing. Microscopical examinations of these, may, according to Einhorn, help to supplement a diagnosis. Particles of tumors are sometimes discovered, especially when a malignant growth is at the cardiac orifice.

The persistent absence of hydrochloric acid and digestion leucocytosis, together with the presence of lactic acid, the Boas-Oppler bacillus and other evidences of motor insufficiency are strong presumptive signs of carcinoma, even in the absence of any tumor, felt by abdominal palpation.

The microscope occasionally reveals the presence of the mycelium and spores of the mold fungus introduced into the stomach through food and drink, especially in cheese. The fungus exists in these ingesta in minute quantities and in the spore forms. In the gastritis present in these cases, highly irritating organic acids are found.

In protracted cases of dysentery, especially in those coming from the tropical or subtropical districts, the feces should always be inspected microscopically for the *Amœba coli*. If found, successful treatment can be instituted and our patient be spared the further complication of liver abscess.

In obscure cases of gastro-intestinal disease, we should not be content with the clinical symptoms alone, but supplement these with an examination of stomach contents and feces. Careful sifting of the feces will often reveal the presence of one or more gall-stones, as icterus does not occur in many cases of cholelithiasis.

In cases of advanced anemia, commonly attributed to malaria and insufficient food, especially in those met with in our Southern States, the question of the presence of uncinariasis or hook-worm disease should always be considered.

To Dr. C. W. Stiles, of the Marine Hospital Service, the profession is indebted, for the discovery of these intestinal parasites, not at first considered native to this country, in the poorer white population in the South, a class frequently referred to as "the poor white trash."

The clinical picture of this disease with the anemia and progressive emaciation, the cardiac symptoms, the edema of the face and ankles, the increased pulse and temperature simulated many morbid conditions, so that many cases were thought to be malarial anemia, valvular heart disease, nephritis and rheumatism. The blood examination revealed the condition known as eosinophilia and a high grade of secondary anemia approaching the pernicious form, but a microscopical examination of the feces showed the presence of the ova and embryos of the parasites in numbers varying according to the severity of the infection.

In the brief time at his disposal, the writer has merely indicated but a few of the many applications of these laboratory aids and, in conclusion, gentlemen, permit me to earnestly urge on such of you who have not as yet made use of them; an early investigation and trial of these means of precision in diagnosis.

Mr. Phipps Gives \$20,000 for a Building for Consumptives.—Henry Phipps has given the Johns Hopkins Hospital, through Dr. William Osler, \$20,000 for the purpose of establishing a separate out-patient department for consumptives at the hospital. This announcement was made last week by Dr. Osler.

MEDICAL PROGRESS.

MEDICINE.

Importance of Normal Intestinal Bacteria.—That bacteria are essential to life is evident from certain experiments, demonstrating how difficult it is to rear animals with sterile food. This is especially the case where the normal food is rich in cellulose, which requires more than any other substance, bacterial activity for its disintegration. J. STRASBURGER (Münch. med. Woch., Dec. 29, 1903) states that it is impossible to render the intestinal tract of the higher animals and man free from germs. Even in polar regions, where bacteria are certainly scant, the intestines contain large numbers. They are responsible for the fermentation in the small bowel and the putrefaction in the large, and the two processes are sharply demarcated from each other at Bauchin's valve. If the alimentary tract is placed into concentrated sublimate solution soon after death, it will turn green above the valve, due to bilirubin, and red below it, owing to hydrobilirubin, resulting from bilirubin by putrefaction. The absence of putrefaction in jejunum and ileum is a wise provision of nature for here the intestinal contents are rich in proteids, which, when absorbed in a decomposed condition, would rapidly cause intoxication and the urine would soon be charged with indican and ether sulf-acids. The intestinal flora is in the main the same in the small and large intestines, but the presence of sugar in the upper part of the alimentary tract plays an important part in preventing putrefaction and in allowing germs capable of setting up fermentation, to gain the upper hand. It is here that many pathogenic germs, accidentally ingested, are destroyed, provided a healthy general condition prevails; the *Bacillus coli* and *Bacillus lactis aerogenes* must thus be regarded as safeguards against disease. Another important function of bacteria is their influence upon peristalsis. Disadvantages resulting from the contaminated intestinal mucosa are few and chiefly concern themselves with a loss of valuable nitrogenous material which naturally goes on with every bacterial proliferation.

The Prolongation of Life.—The consideration of this problem has been a topic for reflection and study since the dawn of thought. SIR HERMANN WEBER (Brit. Med. Jour., Dec. 5, 1903), states that the diminution of infant mortality and the improvement of the hygienic conditions have raised and will continue to raise the average duration of life. Galen, Cicero and others wrote almost as wisely in the ancient days as modern authors have done. Nevertheless there is a great difference between the old writings and the new. This is due to the immortal services of Jenner, Pasteur, Lister and Koch. From the recent reports of the Register Office of England, it appears that we are justified in assuming that though life is usually limited to eighty years it may be occasionally prolonged to a hundred or even more by the operation of certain internal and external agencies. By studying these we may eventually be able to prolong the lives of many individuals beyond a century. The author reports the result of his examination into the records of more than 100 cases of long-lived persons and concludes that the majority of them were temperate, that they were small meat eaters; that they lived much in the open air; led an active life, often one of toil with great restrictions as to food and comforts; that most of them were early risers; that a great many of them had a joyful disposition and performed their work cheerfully and that only a few were intemperate or idle and lazy persons. The tendency to early death is just as hereditary in some families as longevity, and

these individuals it is whose lives by judicious adherence to the regimen above cited can be most favorably influenced. Saville has shown that death from old age is caused by a kind of atrophy of the tissues and organs connected with the changes in the blood vessels, and the atrophy of the hematogenic glands. Life, in other words, depends to a great extent on the organs of circulation. These questions have received especial attention from Ludwig and Sir Lauder Brunton. Mosso has shown by his ingenious balance on which a man is placed in the horizontal position, that during the act of thinking the head becomes heavier from a rush of blood to it. Walking is the natural exercise of the body and Oertel's method of mountain climbing has shown what a profound effect it may have on the human frame, especially upon circulation. Nor is the week end holiday unimportant. Martin Luther's motto, "Rast Ich so Rost Ich" (If I rest, I rust), is true, but the wear of exercise is more than compensated by the increased supply. Of foodstuffs the author says that adult healthy persons do not need alcohol. The average duration of life in Owen's reports comprising 4,284 persons, was greatest among total abstainers. Very few moderate drinkers living as long and almost no one who had been a hard drinker passed beyond late mid-life. Tea and coffee are considered by the author to be valueless, coffee, because of the volatile oil being more injurious to digestion than tea. Snuff-taking is now out of fashion, but many old doctors maintain, not without some reason, that snuff prevented many forms of frontal headache and acted as a valuable stimulant to the capillaries of the Schneiderian membrane. Massage is important, not alone with the general body, but of localized parts. Friction of the thyroid is probably useful in maintaining general energy. Massage of the scalp retards loss of hair and prevents some forms of headache.

Primary Tuberculosis of the Tonsil.—This subject is discussed by S. Ito (Berl. klin. Woch., Jan. 11, 1904), who also reports two cases, where autopsies were made and no tuberculous foci found, except in the tonsils. These foci were localized in the lacunae of the pharyngeal tonsil and rarely on the surface. This, together with the examples of secondary tonsillar involvement, which the author has seen, leads him to claim that the diagnosis of these cases can only be made from microscopical examinations. The rarity with which the condition occurs may be attributed to the fact that the tonsils probably offer little resistance to the passage of the tubercle bacilli, and therefore do not themselves become diseased. As a rule tuberculosis of the tonsils runs a mild course without forming any ulcerations. It is also claimed that the tonsil affords a means of entrance to the tubercle bacilli in the numerous cases of cervical lymphadenitis and the fact that the tonsil is not itself involved is explained by the author as follows: (a) As already stated, the bacilli are known to be able to pass through the tonsil without causing any local changes, and (b) the primary focus in the tonsils may become healed at an early date. If a localized extension does take place it may be attributed to a lessened power of resistance or some particular predisposition on the part of the patient.

Malaria; Epidemiology and Treatment.—The discovery of the part played by the *Anopheles* in the dissemination of malaria has not by any means solved the epidemiological problem, but, as might have been expected, has merely paved the way to that consummation. Large numbers of important accessory problems have cropped up, and the new light which has recently

been cast upon these by the almost unparalleled experience of Celli (Arch. f. Hygiene, 1903, Heft 3), certainly brings one measurably closer to the goal. He points out that an essential element in the study of malaria epidemics is to distinguish between the recurrences due to previous infections, and the fresh cases, as also between the various forms of parasite involved. The difficulties connected with making these distinctions are often considerable. Latent malaria can at present be detected by no known test—neither by agglutination nor by hemolysis, as had been hoped. The microscopical detection of the latent forms of the parasite is very uncertain. The sexual forms are often not to be found in the circulating blood during the latent intervals, and lienopuncture is too dangerous to be resorted to as a diagnostic procedure. The clinical features seem actually to be of more moment in deciding this problem than any other. In general, if the infection is double or triple, recurrences are apt to be more frequent and obstinate. If a given attack of malaria is persistently followed by malaise, weakness, anemia, and splenic tumor, it is safe to conclude that the infection has not been banished. There are also certain factors which strongly predispose the recurrence—namely, deficient nutrition, severe labor, "catching cold," and other diseases. The study of the relation maintaining between the epidemics of recurring disease and those of fresh infections afford certain very interesting and puzzling comparisons. The former always begin somewhat before the latter—the so-called "pre-epidemic" increase. Moreover, in any given locality, either one of them may be very severe, and the other very light. The epidemics of fresh cases show an annual curve which varies according to the parasite: The light tertian forms begin in the spring, even as early as March in Italy, the severe tertian and estivo-autumnal forms make their earliest appearance in summer, while quartan fever is chiefly an autumn disease. The study of the curve of the epidemics as such, which has yielded such remarkable results, has been supplemented by that of the relationship between the mosquitoes and the infections, with no less strange an outcome. In general, it is found that the extent and severity of malaria epidemics in any given region show no relation to the extent of swamp-land and of anophelism. Moreover, the study of mosquitoes in successive years shows an apparently highly variable susceptibility to the disease, thus in 1902, in Vico, of 630 mosquitoes investigated, only three were found to be infected. Celli concludes that the insects possess an acquired or natural immunity against the disease, which lasts for a varying length of time, sometimes apparently over centuries. A very large number of studies were made, with the assistance of the Italian government, upon the treatment, prophylactic and curative, of the infection. Quinine was used during the latent periods, experiments being made with all its available salts in every practicable form of administration. It was found that the percentage of recurrences may be considerably curtailed by an energetic "interval" treatment, yet a fairly large proportion of cases are not affected thereby. Celli considers that excepting quinine all other medicaments are powerless against malaria. For the secondary anemia, quinine, supplemented by good feeding, also affords the best treatment. The prophylactic treatment by quinine of individuals previously not infected has met with a very full measure of success. On the other hand, the efforts to exterminate the mosquito by sanitary engineering is regarded by Celli as almost futile and chimerical. It involves too great an outlay of money, which is likely to be wasted.

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SYPHILIS IN OUR COLONIES.

In proportion to our territorial aggrandizement our interest must grow in this somber but important matter. E. Jeanselme, discussing in the *Revue Française de Médecine et de Chirurgie*, the prevalence of the disease in the French colonies, calls the attention of all colonizing nations to it as a very serious problem. At the present moment, he says, "certain races remain immune, viz., some tribes of Central Africa and of New Guinea and the savage and little known dwellers among the mountains of Laos." There is, however, as opposed to this, a territory overwhelmingly large, whose population in recent years has been decimated by syphilis. This is particularly true of certain parts of Central China. The luetic plague has been less austere in Japan and in the Malay archipelago and in Hindostan. In Siam, according to Deuntzer, syphilis is present in 75 per cent. of the male European population. In the same country, among the upper native classes, a man who has not had syphilis is a rarity. French Indo-China has suffered to a like extent. This explains the frightful ravages of syphilis among the European troops who garrison these countries, and although in those regions where the infection is not of recent origin, the character of the disease need not necessarily

be more severe than we are accustomed to encounter here, it is on the whole a more virulent disease than that seen in the temperate zones.

The gravity of syphilis in the tropics is determined by various factors, the most important of which probably centers in the resisting power of the race to which the individual belongs. It is said that certain of the blacks of the Malay region enjoy relative immunity, but this is by no means true of all.

In the Philippines the syphilitic infection is characterized by peculiar malignancy. This is of ultra importance to us, because the time may not be distant when we shall send large numbers of young men into that region. Throughout the Tropics it is peculiar that the primary infection is very often extragenital. The explanation for this is that excoriations of the body are relatively frequent, because very few clothes are worn. Furthermore it is possible that some of the numerous tropical insects are active agents in spreading the contagion. Again, the modes of life which characterize the hot countries, the single utensil which carries the rice, the common pipe and water-dipper, which circulate from mouth to mouth, as well as other like factors are important agents of infection. The truth of this is evident by the startling frequency of labial chancres. These facts, which tend in a measure to eliminate syphilis from its usual environment and to place it among the diseases to which all may be almost equally prone, make it very desirable that measures should be taken for its control in our territorial acquisitions.

In the Far East it has been noted that syphilis has usually been carried from place to place by itinerant Chinese merchants. This is particularly true in Siam, where, in centers which have been the seat for many years of a sort of Chinese mercantile invasion, it is certain that at least half of the inhabitants are the loathsome victims of malignant syphilis.

In concluding his able paper, the author urges that immediate prophylactic measures be taken for the safeguard of the French colonies from further contamination. With this end in view, he suggests that all civil and military officers, all missionaries and others in any way connected with the government, should be instructed as to the gravity of the syphilitic peril and be taught how to recognize and combat the characteristic lesions of the disease. All colonial physicians in government employ should, he urges, receive special instructions in venereal hospitals in order to en-

able them to diagnose the rarer forms of syphilis.

With our marine hospital service, probably leading the world in the administration of prophylactic medicine, we shall not long be without reports of work done in this important field.

IMPORTANT MEDICAL LEGISLATION.

Two bills relating to important subjects in medicine, one already introduced, the other about to be introduced into the New York State legislature, were under consideration at the recent annual meeting in Albany of the Medical Society of the State of New York. The most important of these was that with regard to the licensing of opticians in order to permit them legally to prescribe glasses for those who seem to need them. The other concerned the regulation of the name and seal of certified milk except in connection with milk that had been actually examined and pronounced worthy of certification by properly constituted boards of health or committees of medical societies. Though demanding very opposite treatment neither of these measures should be neglected by the profession. Medical men who are in a position to exert influence on members of the legislature should employ it for the purpose of hindering the passage of the first bill and assisting in the passage of the second.

The optometry bill, as it is called, has come up in one form or another several times and in many States. Dr. Wiesner, of New York, called attention to the fact that asthenopia was becoming much more common in crowded city life, under the stress of the severe competition which now characterizes modern existence. Scarcely a block of the business portions of our cities fails to display at least one sign of an optician who measures for glasses and directs people with regard to the care of their precious organs of vision, though as a rule he knows nothing more than how to place spectacle lenses in frames and judge of the results produced in the facilitation or obscuration of vision. As is easy to understand, most of them have absolutely no knowledge of the eye and no idea of the serious lesions and complex pathological conditions that may constitute the basis of the dimness of vision for which they so glibly pronounce the word glasses and proceed to measure the patient therefor. It is almost as if the eyes were like the feet and needed no more skill in fitting them than the shoemaker has in fitting shoes. As a matter of

fact the refracting optician not infrequently knows much less about glasses for the eyes than the shoemaker does about shoes.

A recent attempt has been made to gain influence for the optometry bill by sending out circulars, enclosing a postal card, which the doctor is expected to sign and return. The circular is a curiously interesting and specious presentation of the optician's side of the question of refraction. We doubt not that many physicians who did not realize just what the real question at issue was have already signed these postal cards and returned them to the committee of business men having the optometry bill in charge without realizing that by so doing they were actually encouraging the passage of a measure that derogates from the importance of the most delicate and demanding of specialties in medicine, one of which requires the widest knowledge and the best of judgment. After all the prescription of glasses can never be the work of a mere artisan. It must always be a serious professional duty. No prescription that a physician can write may do more good than a proper measurement for glasses, but, on the other hand, no prescription can do more harm than the recommendation of lenses that are not suitable for the eye under consideration.

It is not necessary to recall many serious injuries that have been inflicted by the untrained optician. Many a patient who would probably never have to wear glasses and whose original complaint required local treatment instead of a prescription for lenses is condemned to the use of spectacles as the result of having worn them for a considerable period on the recommendation of some refracting optician who knew no better. It is the optician's business to sell his glasses. Like the advertising specialist who charges nothing for his services, but whose medicines must be purchased at a high rate before the patient leaves his office, the optician must fit his patient with glasses in order to recompense himself for the time spent in studying the patient's eye. It is important then that not the least encouragement should be given to the present unfortunate abuse which it is to be hoped will before long, with many others, be removed as the result of union in the medical profession here in New York State. As for the physicians who have been fooled into signing the postal card and returning it without realizing the measure that they were encouraging, perhaps this will serve as a lesson that in matters of this kind too great care cannot

be exercised and that it is for matters of this kind that medical journals should be consulted.

As regards the other piece of proposed legislation, the guardianship of the certification of milk, there is no bill pending that is likely to do more good. The improvement of the milk supply of the cities of this State as the result of the certification of the products of certain carefully examined dairies and farms has brought about a reduction in infant mortality greater than any other measure ever attempted for that purpose. If, however, milk producers or wholesalers are allowed to falsify certification and claim official approval where it has not been given without fear of legal punishment, much of the good that has been secured will be lost. The bill making such falsification a misdemeanor deserves every encouragement and will, it is hoped, be promptly passed by the legislature. It is minute details of care like this that mean very much for the health of the infants of our cities' poor. No effort should be spared then further to safeguard and secure the permanency of the reform in milk collection and distribution which has thus far proved so effective.

SURGICAL INTERVENTION IN TYPHOID PERFORATION.

ON April 7, 1884, a man, aged forty years, who was seized with unmistakable evidences of intestinal perforation during an attack of ambulatory typhoid, was operated upon by Von Mikulicz. Pieces of potato were floating about in the man's belly. He ultimately recovered.

Recently Drs. R. H. Harte and A. P. Cooper Ashhurst, of Philadelphia, presented a compendious monograph on the subject of intestinal perforation, which reviews not alone the history of the condition, but gives the most modern results and the most recent technical methods. Intestinal perforation is said to occur in from one to eleven per cent. of cases of typhoid fever, the average of nearly nine thousand cases reported by various authors being 2.5 per cent.

The etiology of perforation has been given very careful attention. Whites are more prone to perforation than blacks. It is more common in the male sex by a ratio of four to one. Over one-half of all cases have occurred between the fifteenth and the thirtieth year. Intestinal parasites, always predisposing in their influence, have, with certainty, occasionally acted as the exciting agent of perforation. The stage of the disease

and its severity bear a definite ratio to the incidence, more than half of all perforations occurring during the second and third weeks, and while Osler says "There is certainly no relation between this accident and the severity of the disease, others believe on apparently as good authority that perforation is more apt to occur in the ambulatory than in the classic forms.

Pathologically, Mallory has shown that the so-called "typhoid cells" consist of endothelial cells which have become gorged with leucocytes. The process of formation of these typhoid cells continues, and if the infiltration does not dissolve, the affected area is cast off into the bowels by necrotic action. Ischemia and toxemia aid in this process. Undoubtedly a great many of these ulcers perforate the serous coat but are not heard from for the simple reason that the ever alert peritoneum protects the individual's life by soldering the rent with fibrin; the gut may become attached to a neighboring coil, or the surgeon's friend, the omentum, may wrap itself about the part and prevent contamination. It is rare that perforations are multiple, indeed the number is so small that it is a question whether one should not be justified in ceasing to search for further lesions after one has been found.

The most important symptoms are pain, vomiting, temperature, delirium, rigidity, pulse and respiration, facial expression, tenderness, dullness and edema of the abdominal walls. From these symptoms, which in most cases are vague and unreliable, a differential diagnosis most frequently has to be made from appendicitis, peritonitis, intussusception, cholecystitis, gastric ulcer, suppurating mesenteric glands or splenic infarcts.

The treatment, according to the review of Harte and Ashhurst, of all patients suffering from intestinal perforation in typhoid fever should be by laparotomy. To trust to medical treatment alone is "nothing short of folly." According to the calculations of Briggs (*American Journal of the Medical Sciences*, May, 1903), more than 16,000 perforations of the intestine due to typhoid occur annually in the United States alone. What must be the total mortality from this appalling disaster the world over? Of this stupendous sum of 16,000 all died save fourteen. The mortality is thus, in cases demanding operation, 100 per cent.

The choice of the anesthetic is not unimportant. Many surgeons have advocated the free use of massive infiltration. While theoretically,

at least, this may be as efficacious in preventing shock as general anesthesia, the fact remains that it cannot prevent psychical shock or give that relaxation to the abdominal muscles that is so desirable. A few whiffs of chloroform or ether usually suffice in the debilitated state of the patient to effect complete narcosis.

Speed, from the time the knife is taken in hand, is as essential in this operation as in that of Cæsarean section. The incision is best made to the right of the median line over the cecum. The deep epigastric is not apt to be wounded and that part of the small gut most often affected is, by this pathway, most thoroughly exposed. The cecum should be located at once. The appendix should be removed if necessary. A large number of methods have been devised for the treatment of the perforation, but it is conservative to say that the majority of them can be best handled through infolding by a purse-string suture. Similarly there exists much diversity in opinion as to the most judicious method of affecting the toilet of the peritoneum.

The analysis of 362 cases shows a mortality of 74 per cent. Those perforations, which were under one-eighth of an inch in diameter, gave a mortality of but 51.3 per cent. Those under one-half inch a mortality of 76.7 per cent. Those over one-half inch of 69.5 per cent. The time elapsing between perforation and operation presents an interesting problem. Of those operated within half an hour of perforation, the mortality was 100 per cent.; within one hour 100 per cent., after two hours 66 per cent., after three hours 25 per cent., after four hours 85 per cent. After seventy-two hours the ratio again drops to 55 per cent. After two weeks it is but 50 per cent. It would seem from this that the most favorable time was about three hours after perforation, although the number of cases upon which these statistics are based is not yet sufficient to make such a conclusion positive.

Without going further into the details of an operation which has been exploited by some and condemned by others, it is sufficient to say that this monograph presents facts which should be known to the entire profession of the land. If 16,000 people perish annually from intestinal perforation in the United States alone, and if from an analysis of 362 cases, more than one-quarter were saved from certain death, the most conservative practitioner must be forced to agree with the statement of the authors: "To trust to medical treatment is nothing short of folly."

ECHOES AND NEWS.

NEW YORK.

Appointment at Mt. Sinai Hospital.—Dr. Samuel M. Brickner, who for many years has been associated with the Gynecological Department of the Mount Sinai Dispensary, has been appointed Adjunct Gynecologist to the Mount Sinai Hospital. Dr. Brickner's active service begins with the opening of the new hospital buildings in March.

X-Ray Prize Essays.—Believing that the further development of X-rays is of great importance to surgery and medicine and the human race, and to encourage research and disseminate the knowledge gained, the *Illustrated Review of Physiologic Therapeutics* offers the sum of \$1,500 in cash prizes for the best essays on X-rays in Medicine and Surgery, the first prize being \$1,000. All surgeons, physicians and hospitals interested in any branch of X-ray work should write to the *Illustrated Review of Physiologic Therapeutics*, 19 East Sixteenth Street, New York City, for information concerning title, time allowed, conditions, etc.

Civil Service Examinations for the State and County Service.—The State Civil Service Commission announces general examinations to be held February 27, 1904, including the following positions: Physical instructor in State institutions; physicians in State hospitals and institutions of both regular and homeopathic schools. Applications for these examinations must be made on or before February 22. Full particulars of the examinations and blank applications may be obtained by addressing the Chief Examiner of the Commission at Albany.

Clean Money.—Dr. Darlington, President of the New York Board of Health, was heard Jan. 29, by the House Banking and Currency Committee on the pending bill providing for the issue of new notes to the end that the paper currency may be retained in good sanitary condition. Dr. Darlington explained that he was engaged in an investigation to ascertain whether old circulating notes are mediums of transmitting disease germs, a fact that is fully believed by physicians. The doctor believes a provision for keeping the paper money of the country as clean as possible by constant renewal would be a step in the right direction.

PHILADELPHIA.

Dinner to Dr. Hinsdale.—Members of the medical profession tendered a farewell dinner to Dr. Guy Hinsdale at the Union League, Friday evening, January 29, previous to his departure for Hot Springs, Va. Dr. James Tyson acted as toastmaster.

Assistant Medical Inspectors.—Considerable disappointment has been felt over the failure of the Department of Public Health and Charities to appoint 31 assistant medical inspectors in connection with the plan for the reorganization of the Bureau of Health. It is now stated that at the examination held some three weeks ago more than 200 physicians attended, but that only about 60 attained the required average. This was more than enough to fill the appointments, but as the ward leaders were to make the selections and some wards had several successful candidates and others none, there resulted only the filling of places in a part of the city. A second examination has been held and the names of the physicians to receive the appointments will be announced in a few days.

Development of the Rest Treatment.—At the meeting held in celebration of the twentieth anni-

versary of the organization of the Philadelphia Neurological Society on January 26, Dr. S. Weir Mitchell gave a very interesting résumé of "The Mental Processes by which the Rest Treatment was Developed." The beginning of the chain of circumstances which finally led to the adoption of the treatment was laid during the Civil War. Dr. Mitchell then noticed the cases of acute exhaustion occurring among the soldiers after or during forced marches, this being seen particularly in the Gettysburg campaign. These men remained for weeks or even months in a condition which would now be called neurasthenia. It was noted, however, that complete rest and forced feeding brought them up so that in many instances they were able to again join the ranks. Some time after the war a man who was under treatment for locomotor ataxia fell and broke a leg. This kept him in bed for three months, and as soon as he was out he broke the other leg, this enforcing a second rest of three months. When he finally recovered the use of his legs it was seen that the ataxia was decidedly improved. In 1874 Dr. Mitchell was consulted by a married woman, aged twenty-six years, who was exhausted primarily by much charitable work and the bearing of children in rapid succession. Having ample finances she had tried every known means for the restoration of health, but at the time mentioned was a pitiable invalid. For some time Dr. Mitchell had no better success than had other physicians. He saw that the patient needed both rest and exercise, and recalled the beneficial effect he had seen from the rubbing of people by an old man, who now would be placed in the list of osteopaths and similar performers. A young lady was then engaged for the patient, and by personal instruction Dr. Mitchell developed a system of massage which produced remarkable results. Absolute seclusion of the patient, with massage and electricity, enabled forced feeding to be employed, and rapid restoration to health followed. This first case was discharged in May, 1874. Others followed, and in 1875 appeared the first paper describing the new method of treatment. It was at first received with incredulity and criticism that almost amounted to personal invective. The same reception was accorded the idea in England, where a member of the British Medical Association said that he would rather see his patients die than be cured by such a method. Dr. Mitchell then traced briefly the history of the reaction against this opposition, the use and advocacy of the treatment and finally its world-wide adoption of its principles in the treatment of suitable cases.

CHICAGO.

Crusade Against Tuberculosis.—At the forthcoming meeting of the Illinois State Medical Society, to be held in Bloomington in May, leading physicians of this city will discuss the problems of prevention and cure of this disease, and among the essayists will be Drs. Frank Billings, Geo. W. Webster, H. N. Moyer, Robert B. Preble, and Chas. L. Mix. It is expected that valuable data regarding the ravages of the disease in Illinois will be furnished, also the effect of different occupations on the health of tuberculous patients and the various methods of treatment will be discussed. The statistical features will be confined to the State, and will include mortality, influence of climate, topography, occupation, residence (city or country), and such other data as will be interesting. The symposium will be simply preliminary to more active measures.

Establishment of Antitoxin Plant.—It is stated that Dr. Geo. W. Webster, President of the Illinois

State Board of Health, recently said that the antitoxin manufacturers were selling serum as cheaply as possible. This precipitated a discussion which led physicians to adopt a resolution declaring that an antitoxin plant should be established, independently of all commercial concerns. Accordingly, Dr. Robert B. Preble, President of the Chicago Medical Society, has urged that the matter be laid before the City Council. Dr. Webster does not believe there is any law giving the State Board of Health power to manufacture antitoxin, and even if the Board had the power, there were not enough funds to start the work. Dr. Frank X. Walls, Secretary of the Chicago Medical Society, says that it costs Massachusetts 50 cents a thousand units for the serum it manufactures. New York State pays from 30 to 40 cents for its product. Dr. Webster feels sure that the antitoxin firms will supply the serum at the most liberal terms possible. After the discussion a resolution was passed declaring that the condition of the antitoxin market is such as to render it wise to establish a plant independently of all commercial concerns. The City Council has expressed its interest in the matter, and it is believed by a little judicial pushing it might be induced to do something. Dr. L. Hektoen, Secretary of the Memorial Institute for Infectious Diseases, is quoted as saying: "I am authorized to state that if a fund should become available, the Institute will furnish space for a laboratory and ground for stables, provided it is not attempted to furnish serum for any State other than Illinois."

New Hospital for Children.—A new hospital will be erected to take the place of the present Maurice Porter Hospital. It is to accommodate 60 children. Mrs. Julia A. Porter has given \$75,000 for the erection of the building. The present hospital was founded in 1882 by Mrs. Porter as a memorial to her son. At first it had 12 beds, but later 31 beds. The new building is to be a modern fire-proof structure, with every facility for the care of sick children. The six requirements of the Children's Hospital Association provide for an observation department, where children are kept two weeks before admission to the wards; an isolation department, laboratory facilities, pure milk supply, bedside and didactic instruction for nurses, and one thousand cubic feet of air for each patient.

Chicago Medical Society.—At a meeting held January 20, there was a symposium on Dietetics. Dr. Fenton B. Turck read a paper on The Dietetics of Atonic Dilatation of the Stomach, in which he discussed the physiology and pathology in relation to atonic dilatation, as well as the therapeutics based on the pathology. He divided the mechanical work of the stomach into three stages: First, distention with food; second, expulsion, and, third, relaxation. He said that the normal resistance at the pyloric end of the stomach increases the tension (lateral pressure), which within physiological limits increases the stimulus to more powerful and frequent contractions. At the end of the digestion the maximum degree of power and number of contractions are obtained. Atony and dilatation may be found as the result of increased resistance in front, such as by stenosis of the pylorus, and cause prolonged overwork and exhaustion of the gastric muscles, or the overwork and exhaustion may be due to the constant and excessive work upon the load within the gastric cavity. The overwork and ultimate exhaustion are the same in either case, but the pathology and therapeutics are a different question. In determining the exact regimen of dietetics in atonic dilatation, all symptoms and conditions must be subordinated to the one central

indication, namely, the restoration of the exhausted gastric muscle. In order to apply therapeutics specifically, the degree of exhaustion must be measured. He said the two main pathological conditions to be corrected in simple atonic dilatation of the stomach were the exhaustion of the gastric muscles and bacterial growth in the gastric cavity. The main effort must be directed against the muscle weakness, not only for the nutrition of the patient, but for the prevention of bacterial growth and the resulting toxins which produce many of the grave symptoms found in this serious malady. To correct the muscle weakness and allow the musculature to recover, it may be necessary to lessen the total amount of food for a period, and undernourish the patient, thus giving rest to the diseased organ at the expense of the whole organism. The gain here is twofold: First, food is better digested, and, second, it is not robbed of its nutritive value by bacterial growth. In the beginning of a course of dietetic treatment, after the stomach has been placed at complete rest, the question of the character, composition, preparation, and time of giving food presents itself. A uniform diet for all the degrees and forms of atonic dilatation cannot be arranged, but the author presented a few examples. Theoretically, a liquid diet is most advantageous; practically, finely divided solid food is best, properly prepared, with appropriate amount of liquid, sufficient to aid the stomach to macerate the mass and inject it into the intestines. Usually two meals a day are ordered, one in the morning and one in the evening. In connection with diet, certain mechanical methods of treatment are not only useful, but often indispensable. For the mechanical effect, lavage is recommended by most of the text-books, and added to this galvanic and faradic electricity, general baths, exercise and drugs. A large number of the patients he had treated in the last ten years had all these methods used without success, often with harmful results. He has presented many of this class of patients, after a course of treatment, before the Society, on several occasions. He has also shown the objections to lavage. It has its use in complete stagnation as a palliative measure. Those methods are most valuable which will mechanically affect the gastric muscles direct, without washing out the necessary nutriment and secretions from the stomach cavity. Riegel seems to have obtained but little benefit from the use of static, galvanic or faradic electricity. The speaker has found high frequency with the Oudin resonator of considerable benefit as an adjuvant.

Diet in Hyperchlorhydria.—Dr. B. W. Sippy, in a paper on this subject, said that hyperchlorhydria designates a condition in which an abnormally great quantity of hydrochloric acid is secreted during the time the food is in the stomach. The subjective symptoms of the condition are referable chiefly to the irritation produced by the excessive quantity of hydrochloric acid upon the nerve endings of the mucous membrane and stomach and the adjacent esophagus. The following symptoms are more or less distinctive: Gastric discomfort, appearing from one to two hours after eating, combined often with eructations of gas, a feeling of fullness, burning sensation in the stomach, heartburn, acid pyrosis, rarely nausea, and still more rarely, vomiting. Patients seriously afflicted restrict their diet because of fear of distress after eating; they lose weight, become irritable, and form by far the largest contingent of the chronic dyspeptics. Accuracy in diagnosis demands chemical analysis, which is simple. When hydrochloric acid is in excess to the normal, surplus symp-

toms may be present or not, depending largely upon the sensitiveness of the nerves of the gastric mucosa. Even a very high grade of hyperchlorhydria may produce no symptoms. Such a hyperchlorhydria is said to be latent. In some cases a hyperesthesia of the mucous membrane to normal acidity is present. Clinically, such cases are symptomatically hyperchlorhydrias, and are inseparably related to hyperchlorhydria as determined by chemical analysis. In the treatment of the condition diet is all-important; but etiology must be taken into account in each case. The following causes were mentioned: Hasty eating, improperly prepared food, overeating, certain ill-defined disorders of the nervous system are responsible in many cases. Frequent in neurasthenics; secretion may be increased or abnormal sensitiveness of the nerves may be induced by mental states, nervous shock, worry and fatigue. The anatomical causes that are operative are ulcer, with or without pylorus spasm. In the irritative stage of gastritis, hyperchlorhydria may be present. There may be benign pyloric obstruction. There are certain toxic causes, chiefly the abuse of alcohol and tobacco. Fortunately, by close attention to diet alone most cases may be satisfactorily treated. The diet should fulfill the following indications: First, mechanical, chemical and thermal irritation of sensory and secretory nerves of the stomach by food and drink must be reduced to the minimum. Second, food should contain a liberal quantity of albumin to combine with the excessive hydrochloric acid. Third, the diet must be sufficiently nourishing. Fulfilment of indications is simple. All foods should be taken in a state of fine subdivision, and great care given to thorough mastication. Meat should be scraped or finely teased apart. Potatoes and all vegetables should be given in as near puree form as possible. Pickles, potato salad, fried potatoes, coarse nuts, radishes and similar coarse articles should be avoided. Coffee, spices, sharp condiments, mustard, pepper, vinegar, acids, and alcoholic drinks should be avoided. Hot and cold food and drink should be avoided. The diet should be a mixed one, containing albumin, fat and carbohydrates. In the beginning of the treatment a liberal quantity of albumin in the form of lean meat should be given, because it is non-irritating and combines a maximum quantity of hydrochloric acid. Fat in the form of butter and cream is well tolerated, and tends to reduce the quantity of acid secreted. Because the excessive acidity quickly inhibits the action of the ptyalin, the starches should be restricted moderately at first or given in dextrinated form, as zwieback or toast. The following plan may be adopted in most cases with success: For a man weighing 160 pounds, during the first week or ten days one-third pound of rare steak, well cooked, veal, mutton, lamb, chicken or turkey; sixty grams of toast or zwieback, a glass of milk and cream, equal parts, an ounce of butter, and, if desired, a soft egg or a hard-boiled egg grated for each of the three meals a day. If constipation is present, stewed apples, prunes or figs may be added to the diet. As a rule, little discomfort, aside from a slight fullness, is experienced. A powder of calcined magnesia and sodium bicarbonate, equal parts, 3ss, may be given after meals, at the time discomfort appears. A gain of two and three pounds will usually be recorded during the first week. The diet is then enlarged. Rice, oatmeal, well-cooked; vegetables, puree, stale bread may gradually be substituted for toast, and after four or five weeks a normal diet may be resumed. The patient should be instructed to avoid certain named articles, and at the first intimation of

an attack the restricted diet should be resumed for a few days.

Dietetics in the Treatment of Diabetes.—Dr. A. C. Croftan limited his discussion to a disquisition on the modern mathematical ideas underlying the dietetic treatment of diabetes, and called attention to the fact that in the light of our latter-day knowledge of metabolism it is possible to regulate the diet of diabetic cases with absolute accuracy. He condemned the popular fallacy of withdrawing all carbohydrates from the food in every case that presents itself with sugar in the urine. The two chief dangers of this practice are, in the first place, the utter impossibility of adequately nourishing patients with fats and meats alone; in the second place, the danger of permitting the development of diabetic acidosis, and its almost inevitable consequence, diabetic coma. The speaker at some length explained the application of certain physical laws in regard to the heat and labor equivalents to physiological and pathological processes, and showed by simple calculation of the caloric value of the food and the caloric value of the excreted sugar, that one can determine mathematically just how much loss of proper tissue the patient suffers, and precisely which of the tissues are sacrificed. He recommended establishing several degrees of glycosuria: One in which the patients can tolerate a certain amount of carbohydrates; a second one, in which not only the carbohydrates must be withdrawn, but a certain proportion of the food albumin must be reduced before the sugar disappears; a third and most severe form, in which the sugar does not disappear, even when all the carbohydrates and a large proportion of the albumin are withdrawn. Based on this subdivision, the dietetic treatment must be regulated. In conclusion, the author spoke of the factors that determine the development of acidosis and coma, and mentioned the dietetic means to prevent these accidents. He bitterly condemned the shallow practice of handing patients with diabetes printed diet sheets at random, and made a strong plea for strict individualization in the treatment of this disease.

Dietetics in the Treatment of Brights Disease.—Dr. Arthur R. Elliott stated that the scope of this subject is so broad that no attempt was made to consider it in full detail. The speaker confined his discussion of the subject to a consideration of the most important recent advances in this field of research. The principles of protective dieting in Brights disease include not only relief to the kidney from all superfluous work and irritation, but also the no less important consideration, caring properly for the nutritive needs of the general economy. In order to enforce rationally these principles, it is necessary to know which of the urinary solids are easily excreted, and also those which are removed with difficulty by diseased kidneys, so that we may be in a position to exclude all foods that cause the formation of end products which are inimical to the kidneys. Von Noorden's studies of the excretion of metabolic products furnished the author with information that enabled him to construct such a dietary. He found that among substances excreted with difficulty in nephritis are urea, inorganic sulphates, creatinin, urine pigments, hippuric acid, phosphates, and, under certain circumstances, water. On the strength of these findings he excludes, on account of urea and inorganic sulphates which they contain, all proteid foods over and above the amount necessary for purposes of systemic nutrition. On account of creatinin, meat extracts and broths; on account of urine pigments, foods containing hemoglobin; on account of phos-

phates, he advises that calcium carbonate be given in medicinal doses several times daily, when the patient is taking milk freely in order to arrest the phosphoric acid in the bowel, when it remains in combination with calcium. On account of the hippuric acid which they contain, he excludes certain green vegetables, cranberries, and fruits containing kernels (prunes, plums, etc.). On account of uric acid and alloxin bodies, he excludes all glandular organs used as foods, i.e., kidneys, liver, sweetbreads, also coffee and all malt beverages. Alcohol is also forbidden, save for medicinal purposes. Milk still remains the staple article of diet in acute nephritis. The more nearly the disease approximates the acute form, the more exclusively should milk be used as the chief source of proteids. Exception is taken to exclusive milk diet in acute nephritis, owing to the poverty in iron, and the large quantity (three to four liters) necessary to furnish the nutritive calories needful for systemic purposes. It is advised, therefore, to enlarge the milk regimen by the addition of simple farinaceous foods and modify the milk by the addition of sterile cream in the proportion of one to four of milk. Of this mixture, one and one-half to one and three-quarters liters a day is allowed the patients with acute nephritis. As convalescence progresses, the diet is gradually extended. Full normal diet should not be permitted until all signs of nephritis have disappeared in the urine. Exclusive milk diet is inapplicable to the treatment of chronic nephritis, owing to the nutritive deficiencies and unfavorable influence on pulse tension. Formerly patients were urged to drink abundant quantities of water under the mistaken idea that by such means elimination of organic waste was increased. As a matter of fact, during the stage of dropsy in acute nephritis water is one of the substances excreted with difficulty by the kidneys. Great benefit may follow the restriction of fluids during this stage. This course is especially indicated if dyspnea or other evidence of cardiac embarrassment exists. As the case improves, the fluids may be increased in amount. By controlling the amount of chlorides ingested with the food, Widal and Javal were able to demonstrate that in certain cases of parenchymatous nephritis edema and albuminuria could be markedly influenced. By excluding as far as possible all chlorides from the diet, a decided reduction of the dropsy and albuminuria was effected. They conclude that salt is for certain cases of parenchymatous nephritis a dangerous food constituent, and they propose a cure by dechlorination, i.e., the exclusion of all salt from the diet. Their results have been confirmed by subsequent observers. The writer reports two cases of parenchymatous nephritis very favorably influenced by this treatment. It is probable that in the dechlorination principle we possess a valuable adjunct to the treatment of parenchymatous nephritis. Dietetics in chronic interstitial nephritis is much more involved than in other forms. The high arterial tension with cardiac hypertrophy almost invariably present introduces a peculiarly difficult element into the treatment of these cases. Any diet which does not take into account these cardiovascular conditions will prove inappropriate and harmful. Regarding the choice of proteids, it is now known that the old and oft reiterated dogma of the superiority of white over red meats is incorrect. The researches of Walker, Hall, and Kaufmann and Mohr prove that red meats are no more harmful than white, and are equally available to the nephritis invalid. The vegetarianism of some clinicians is to be condemned, on account of its bulk, nutritive deficiencies, and high content of water. Meats are conse-

quently a necessary part of the diet in this disease, and it is a matter of indifference whether white or red meat is taken. We must nevertheless strictly confine the amount of proteid food within certain fixed limits. The limit of renal capacity for nitrogen excretion in interstitial nephritis corresponds to the ingestion of about 100 grams of albumin. Within this limit the amount should be restricted. It should never be forgotten that every patient with interstitial nephritis also has heart disease, and that high tension and cardiac failure are constantly menacing elements. Consequently the simple rules of cardiac hygiene, of which moderate-sized meals and limitation of fluids are among the most important, must be enforced. Provided the amount of fluid be not reduced below 1,500 c.c., organic elimination via the kidneys is not interfered with. In the presence of stenocardia it may become necessary to abandon the habitual dietary, and temporarily substitute one specially designed for lower arterial tension. Restriction of fluids to the lowest limit compatible with comfort, and a diet of bread, fruit and nuts may accomplish this within a few days.

CANADA.

A New Secretary for the Ontario Board of Health.

—The Ontario Government has appointed Dr. Charles A. Hodgetts to the position of secretary for the Provincial Board of Health, a position which was rendered vacant through the appointment of Dr. Peter H. Bryce as Medical Inspector of Immigration under the Dominion Government. Dr. Hodgetts has been connected with the Ontario Board of Health since 1890 and was appointed to the position of medical inspector permanently in 1900. The new secretary is a graduate of the Ontario College of Pharmacy (1878) and also a graduate of the Toronto School of Medicine and of Victoria University (1886). After graduation he was for a time house surgeon at the Toronto General Hospital, after which he studied for three years in English hospitals, where he took the degree of L.R.C.P., London. He has had charge of several smallpox outbreaks in the province.

To Fight Tuberculosis in British Columbia.—A largely attended public meeting was held in Victoria, B. C., January 20, for the purpose of forming a provincial association to be called the British Columbia Association for the Prevention and Treatment of Tuberculosis. Dr. C. J. Fagan, secretary of the Provincial Board of Health, presented the question at considerable length and moved the resolution establishing the Association. He referred to the need of such an organization, as British Columbia was not abreast of the times in the respect of dealing with her tuberculous citizens, and then there were annually lost to the province 200 lives through consumption. He considered that Kamloops was an ideal spot for a sanitarium and stated that Mr. Gage, of Toronto, the treasurer of the National Sanitarium Association, had promised aid. Financial assistance will also be sought from the local government of the province as well as from the Federal Government. The Lieutenant-Governor, Sir Henri Joly, was elected Hon. President; Dr. Proctor, of Kamloops, secretary, and on the Executive, Dr. J. C. Davie, of Victoria, and Dr. R. E. Walker, of New Westminster.

Annual Meetings of Medical Associations.—The Canadian Medical Association meets this year in Vancouver, B. C., under the Presidency of Dr. Simon J. Tunstall of that city. Dr. George Elliott, 129 John Street, Toronto, is the General Secretary. Mr. Mayo Robson will be a guest of the Association. The dates

for the meeting are August 23-26, 1904. The Ontario Medical Association meets in Toronto on June 14-16, 1904, under the Presidency of Dr. James F. W. Ross, of that city. Dr. Chas. P. Lusk, 99 Bloor Street, West, is the General Secretary.

The Death of Dr. John Herbert Sangster.—A notable figure in the medical life of the province of Ontario passed away suddenly of heart disease on January 27, while a guest at the King Edward Hotel, Toronto, in the person of Dr. John Herbert Sangster, of Port Perry, Ontario. Dr. Sangster was seventy-two years of age and came to Canada from London, England, with his parents in 1831. From 1866 until 1871 he was principal of the Toronto Normal School, being at the same time Professor of Chemistry and Botany in the old Dr. Rolph's School of Medicine. At that time he completed the study of medicine, and upon his retirement from the principalship of the Normal School in 1871, he moved to Chicago, but shortly after returned to Canada, and commenced the practice of medicine at Port Perry, where he continued in active practice up to the time of his death. The late Dr. Sangster was a member of the Ontario Medical Council to which body he was elected in 1894. He immediately entered upon a campaign looking toward the exclusion from that body of the representatives of defunct teaching bodies. Many years ago Sangster's arithmetic was the standard text-book in the Ontario public schools. He was a frequent contributor to the public press, much more than he was to the medical press.

Experiments with Marmorek's Tuberculosis Serum in Montreal.—Two patients at the Notre Dame Hospital, Montreal, have been recently injected with Marmorek's serum, one with tuberculosis of the lungs and the other with tuberculosis of the knee-joint. The operations were made under the supervision of Dr. L. J. Lemieux, of Montreal, who has lately returned from Paris, and where, he states, he witnessed 25 cures for consumption by means of this serum treatment. Dr. Lemieux brought back with him serum sufficient for the treatment of 15 patients. This is the first time the serum has been employed in Canada, and probably the first used on this side of the Atlantic.

Personals.—Dr. T. J. Norman, of Toronto, has been appointed assistant superintendent of the Asylum for Feeble-Minded at Orillia, Ontario, to succeed Dr. Moher. Among the Canadians attending the Tuberculosis Exposition at Baltimore, last week, were Dr. J. George Adami, of Montreal, who contributed a paper on the "Facts, Half Truths and Truths about Tuberculosis," and Dr. J. H. Elliott, Medical Superintendent of the Muskoka Cottage Sanatorium, who presented interesting exhibits and models.

GENERAL.

National Legislation for Pure Food.—The Senate Committee on Manufactures, which last week made a favorable report on the McCumber Pure Food bill, will take up next week the Hepburn bill, which has already passed the House. The Hepburn bill provides that a drug shall be deemed to be adulterated if, when it is sold "under or by a name recognized in the United States Pharmacopoeia, it differs from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopoeia, official at the time of the investigation." The McCumber bill tempers this provision to some degree by inserting the proviso "that no drug shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated upon the bottle, box, or other container thereof, although such standard may differ from that determined by the test laid

down in the United States Pharmacopoeia. In the further provisions regarding the adulteration and misbranding of foods and drugs the McCumber bill takes the specific definition found in the Hepburn bill, as, for example, "if any valuable constituent of the article has been wholly or in part abstracted," and adds to each such clause the words "so that the product when sold or offered for sale shall deceive or tend to deceive the purchaser." The distinction made by the additional words is a very slight one, and its effect on the enforcement of the law would be for the courts to determine. It is easy to imagine a case in which, for instance, a "substance or substances has or have been substituted wholly or in part for the article," when there would be no deceit. Suppose that for one of the ingredients of a prepared mustard a red substance had been added, making the whole product of a dark orange color. The purchaser would hardly be deceived, as it would be perfectly plain that some substance not in the ordinary formula had been added. Such a product would apparently be deemed adulterated under the Hepburn bill, but not under the McCumber bill.

Medical Library for Maryland.—At a meeting of the Medical and Chirurgical Faculty, held December 28, 1903, it was unanimously resolved to make an appeal to the legislature for an appropriation of \$100,000 for the purpose of erecting a suitable and fire-proof building to contain the great medical library which for the last fifty years has been collected by our association, which has become one of the most complete and valuable libraries in this country, and which has now outgrown its present cramped quarters. The grounds upon which they base their appeal are as follows: (1) That the Medical and Chirurgical Faculty, which represents the medical profession of the City and State, have with great effort collected during the course of many years, a valuable medical library, one of the most complete medical libraries in this country; that this library has outgrown the quarters which the profession purchased out of their own collections and with great difficulty; that the destruction of this library by fire would be irremediable, and would be a loss to the entire people as well as to the profession; and finally that the resources of the medical profession are insufficient for the erection of a suitable building. (2) That it is well known that the medical profession, both directly and indirectly, serves the State and the public without remuneration, in advice in matters hygienic, in efforts to improve the health and well-being of the citizens, and in preventing the spread of disease. And that for these reasons, the medical profession deserves the assistance of the State in the effort to place the central library, one of its most powerful instruments, in a proper and adequate building, where it will be protected against destruction and where it may steadily grow. (3) That in providing for the medical library, the State will not only benefit the profession, but by giving the profession the means to improve itself, to study the old and to inform itself of the new discoveries of medical science, as well as to stimulate further research and observation, it will serve itself, for the real benefit will accrue to the citizens themselves; that Maryland is fast becoming one of the leading States in advancing medical science, and that this reputation is of great value to the State; that the improvement of public hygiene, for which the City of Baltimore and the State annually expend great sums of money, as well as the numerous public hospitals and asylums, which depend entirely, or in great part, upon the State and City's treasury, and over which the State and the City of Baltimore act as guardians, require as an absolute necessity the preservation and the continued growth of this great library. (4) That this

library is not only of service to the members of the Medical and Chirurgical Faculty, but that access is possible to any member of the profession and to the thousands of medical students who are attracted to Baltimore from every part of the United States and from distant countries. (5) And last of all, this Faculty, which has been for more than 100 years the guardian of public health, the incentive to improvement in its own members and in the entire profession of the State, has never before applied to the legislature for financial aid for any purpose. To accomplish our purpose, it will be necessary for each and every member of the city and county societies to take an active interest, and to personally interview and request the representatives in the legislature (both Senate and House) to support the measure themselves, and to use their influence upon their associates to have this bill favorably acted upon.

Recent Statistics of Physicians.—*The United States.*—The total number of physicians in the United States is probably about 105,000, that of regular practitioners being about 95,000. During 1902 the deaths of 1,400 regular practitioners of the United States were recorded in the *Journal of the American Medical Association*. This is probably within 5 per cent. of the total mortality in the profession of the United States. Consequently the death-rate for the year was about 14.74 per 1,000, a lower rate than is usually supposed to obtain in the profession. The statistics of American life insurance companies show a mortality-rate per 1,000 among physicians of 7 at the age of 25, 15 at the age of 35, 21 at the age of 45, 34 at the age of 55, and 112 at the age of 65. The statistics of the United States census of 1900 show figures closely parallel with the estimate given by the *Journal*. *Canada.*—*The Canadian Journal of Medicine and Surgery* compares the situation of the medical profession in France to that of the profession in Ontario. The comparison is significant. In the rural districts of France there are about 3 doctors per 10,000 of population. In the larger cities there are 7.4 per 10,000, and in Paris 10.65 per 10,000. Throughout Ontario there are 11.4 doctors per 10,000, while in the city of Toronto the physicians number 20 to the 10,000. Roughly speaking, therefore, there is in Ontario double the number of physicians per head of population that there is in professionally overcrowded France. *Germany.*—*Dr. Wehmer's Medical Directory* states that there are now 28,127 medical men in Germany, as compared with 27,039 in the previous year, 26,479 in 1900, 26,049 in 1899, 25,178 in 1898, and 24,393 in 1897. The increase of 1,088 in the number of medical men from the year 1901 to the year 1902, is an increase of 4 per cent. and is greater than in any previous year. During the past five years the numerical increase of the medical profession was 3,734, or 15.2 per cent., while the increase of the general population was 9.3 per cent. As regards distribution throughout the various States it is found that 17,126 medical men reside in Prussia, 2,790 in Bavaria, 2,148 in Saxony, 1,147 in Baden, 937 in Würtemberg, 814 in Alsace-Lorraine, and the remainder in the smaller States of the Empire. There are 2,366 medical men in Berlin, 583 in Munich, 573 in Hamburg, 548 in Breslau, 433 in Dresden, 431 in Leipzig, 344 in Cologne, 354 in Charlottenberg, 338 in Frankfurt, and 304 in Königsberg. *Austria.*—*The Austria Medicinalkalender* for 1903 states that the number of medical men at the end of 1902 was 11,339. At the corresponding period of the previous year it was 10,797. They are distributed as follows: Lower Austria, 3,325; Upper Austria, 393; Salzburg, 124; Styria, 675; Carinthia, 148; Krain, 104; Küstenland, 339; Tyrol and Vorarlberg, 601; Bohemia, 2,789; Mähren, 943; Silesia, 237; Galicia,

1,382; Bukowina, 139; Dalmatia, 140. In Bosnia Herzegovina there were 100 practitioners. Taking the chief cities, in Vienna there were 2,576 practitioners; in Linz, 60; in Salzburg, 40; in Graz, 270; in Klagenfurt, 37; in Laibach, 36; in Trieste, 181; in Innsbruck, 84; in Prague, 538; in Brunn, 188; in Troppau, 37; in Lemberg, 288; in Czernovitz, 57; and in Zara, 17. *Finland*.—According to official statistics which have recently been published, there are in Finland 414 legally qualified medical practitioners. This does not include 25 medical officers of the Russian garrison. There are 31 dentists. The number of unqualified practitioners is given as 14, so that Finland would seem to be in the happy position of being almost free from quacks.—*Medical Book News*.

Study of Infectious Diseases in the Philippines.—Drs. E. L. Tyzer and W. R. Brinkerhoff, who have been assisting Dr. W. T. Councilman, of Harvard University, in recent experiments into the causes of smallpox, will leave for Manila at once, to continue work there along the lines pursued at Harvard. Funds for the undertaking have been provided by popular subscription, and it is planned that the two doctors shall remain a year. Other tropical diseases, which are likely to be brought to this land through growing intercourse with the islands, will be considered also, with a view of preparing American physicians for their treatment.

Disinfection for German Libraries.—The Berlin municipal authorities have decided to make an attempt to exterminate the microbes in the public libraries, Prof. Koch having called attention to the danger of spreading infectious diseases through books loaned indiscriminately from libraries. A plan for attacking the microbes will be submitted to the Library Committee of the Municipal Council on Feb. 2. It is intended to adopt some method of disinfecting books after their use.

Pharmacologist.—The United States Civil Service Commission announces an examination on March 1, 1904, to secure eligibles from which to make certification to fill a vacancy in the position of pharmacologist (male) in the Bureau of Plant Industry, Department of Agriculture, at \$1,800 per annum, and other similar vacancies as they may occur. Applicants will not be assembled for this examination. The person appointed to this position must be a man trained and equipped with the knowledge and experience necessary for isolating and handling poisonous and other active principles of plant origin. He must be trained in animal physiology and pharmacology, and must have had experience in studying by exact laboratory methods the effect exerted on the different animal functions by the active principles of plant origin. He should be familiar with the best forms of apparatus used in carrying on such experiments and should have abundant laboratory experience in making such investigations. He should be able to read at least French and German, in addition to English. Age limit, twenty years or over. This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1312, which should be properly executed and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 1, 1904. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

The Maryland Tuberculosis Congress.—Some alarming facts are brought home to Baltimoreans at the tuberculosis exposition, which opened last week in McCoy Hall, under the auspices of the Tuberculosis Commission of Maryland, conjointly with the State Board of Health of Maryland and the Maryland Public Health Association. If the observations of the health officials are correct, the pavements around Baltimore's City Hall and Courthouse are among the filthiest in the city, and the street cars are about as dirty as those to be found anywhere. The "City Hall Sputistics" are something that catches the eye of the visitor soon after entering the exposition. A reading of the chart is calculated to make a Baltimorean fairly blush when he remembers that the city has an anti-spitting law and the manner in which it is enforced. The "Courthouse Sputistics" are hung near those of the City Hall. Here is what is said of the City Hall pavements: In eight walks around the City Hall on eight different days, between the hours of 10 A.M. and 2 P.M., there were counted: Separate deposits of sputum—2013. Highest count was made on January 16, 1904—390. Lowest count was made on December 26, 1903 (bitter cold)—144. Average count—251.6. Filthiest spot—Holliday street front. In second degree disgusting—honor divided between southeast and southwest corners. And then this chart, on which is pasted a photograph of the new courthouse: In nine walks around the Courthouse on nine different days between the hours of 10 A.M. and 2 P.M., there were counted: Separate deposits of sputum—3,793. Highest count, on December 31, 1903—560. Lowest count, on December 26, 1903 (a bitter cold day)—235. Average—421.5. Filthiest spot—St. Paul street entrance. In the second degree disgusting—Calvert street entrance. Another chart at the Exposition refers to street cars in Baltimore. This information was also gathered by Drs. Fulton and Price, and the observations are to the effect that the motormen and conductors are among the biggest violators of the anti-spitting law. It reads as follows: Street-Car "Sputistics." 248 car rides; 3,156 passengers; 944 separate deposits of sputa; 4 sputa per car; 41 crowded cars; 125 counted deposits; 3 sputa per crowded car; 49 wet cars; 52 counted sputa on wet cars; 1 sputum per car; 90 cars crowded or wet; 177 counted sputa; 2 sputa on crowded or wet cars; 158 cars neither crowded nor wet; 817 separate deposits; 5.17 per car; 30 times spitting witnesses; 2 conductors seen to spit on cars; 5 motormen seen to spit on cars; pools are counted as on deposit; motormen are depositors of pools.

Gov. Edwin Warfield made the opening address, and among the others who spoke were Mayor McLane, Dr. William Osler and Mr. Frederick Hoffman of Newark, N. J. All urged upon the audience the necessity of taking steps to prevent the spread of tuberculosis, and advised all to visit the exposition. Dr. Lawrence F. Flick, of Philadelphia, lectured on "House Infection of Tuberculosis." Dr. Mazyck P. Ravenel, of Philadelphia, read a paper on "Bovine Tuberculosis a Factor in Human Tuberculosis." Dr. D. E. Salmon of Washington, spoke on "Some Observations on the Tuberculosis of America." The tent exhibit was among the most interesting in the hall. It showed a number of tents used by physicians in different parts of the country in treating their patients, and one was a model of the tents on Ward Island, used by the consumptives of New York, and made especially for the exposition by the patients. The Congress was a great success.

The History of Consumption.—Dr. William Osler addressed the final meeting of the Tuberculosis Exposition. The big auditorium in McCoy Hall was filled to the doors with ladies, students, physicians and lay-

men to hear "The History of Tuberculosis." He began with Hippocrates, the father of medicine, as he is commonly known, and came on down to modern times, with biographical, critical and explanatory comments. The Greeks, he said, knew of the disease, but were unable to treat it, for they did not know its cause. Galen, Dr. Osler said, was the first to recommend open-air life for consumptives as a means of recovery. The Romans early took advantage of this, for it is well known that they used to send their tuberculosis sick on long sea voyages to Egypt. Celsus was another great advocate of out-of-door habitation. Turning to France, Dr. Osler spoke particularly of Lænnec, the inventor of the stethoscope. Dr. Osler told some amusing anecdotes about Lænnec, who went to Paris early in life and there became a student of medicine. His great book on the discovery of the stethoscope was published about 1819. He is responsible for the theory of the unity of tuberculosis; that is, that the disease in all its forms has a common origin. Willeman, Dr. Osler said, was the first to prove by bovine inoculations that tuberculosis passes from man to cattle and from cattle to man. Then the great Koch, with his elaboration of this idea, was taken up. Dr. Osler passed around several valuable and rare volumes, and, in closing, said: "Probably it would be too much to hope to get rid of tuberculosis entirely. But it has been unmistakably shown that it can be prevented, and some day—who can say?—there may be a way of guarding against it by vaccination. This means in a crude way has been tried on calves with some success. The best we can do is to use fully the means we can command for combating the disease, such as getting control of tenements and sweatshops, teaching cleanliness and care and enforcing laws of sanitation.

OBITUARY.

Dr. PHOEBE JANE BARCOCK WAIT died at her home, in New York, last week. She was born at Potter Hill, R. I., Sept. 30, 1838, and acquired her early education in the district schools, in which she was afterward a teacher. Later she entered Alfred University, receiving from it the degree of Bachelor of Arts and of Master of Arts. Subsequently she came to this city, and in 1863 was married to William B. Wait, Principal of the New York Institution for the Blind, who survives her. Entering upon the study of medicine in 1868, when women in that branch of science met with violent opposition, she became a student in the New York Medical College and Hospital for Women, and was graduated in 1871. Immediately upon her graduation she entered upon active practice, devoting a large part of her practice to the study of obstetrics. In 1880 she was elected to be Professor of Obstetrics in the New York Medical College and Hospital for Women, which chair she held for upward of twelve years, during part of which time she was also Dean of the college. In 1879 she received the diploma of the New York Ophthalmic Hospital and College.

Dr. GEORGE H. R. BENNET died of apoplexy at his home, 21 South Portland avenue, Brooklyn, on January 26, in the sixty-seventh year of his age. Dr. Bennet was the son of an old Brooklyn physician and was born in Brooklyn. He was graduated from the medical school of the New York University in 1860. He was a member of various local medical societies, the Brooklyn Medical Club and the Crescent Athletic Club, and at one time served as surgeon of the Twenty-third Regiment.

Dr. GEORGE THOMPSON died last Tuesday from old age. He was born in Belfast, Ireland, in 1817. He practised medicine in this city for forty years, most of the time in East Twentieth street. He gave up active work fifteen years ago.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 16.

THE CENTRALIZATION OF MEDICAL TEACHING IN LONDON—AN INTER-HOSPITAL WAR—THE LONDON POLYCLINIC—TUBERCULOSIS IN THE POSTAL SERVICE—THE PATHOLOGY OF CHRONIC ALCOHOLISM—PROGRESS OF CREMATION.

REFERENCE has been made in previous letters to the proposal to centralize the teaching of anatomy, physiology and the other sciences which form the foundations of medicine which at present are taught more or less efficiently in the twelve independent medical schools in which this metropolis rejoices. The scheme is taking practical shape, and already negotiations for the purchase of a suitable site are in progress. Unfortunately it seems to be considered necessary that the site of the proposed Institute of Medical Sciences should be in the near neighborhood of the existing local habitation of the University of London. This means that it will have to be found in South Kensington, one of the most expensive quarters in London. Not only will land be of great price there, but it will be difficult for students, who are not as a rule richly endowed with worldly goods, to find suitable lodgings within reasonable distance of the Institute. It is proposed that premises and equipment adequate for the instruction of 500 students in anatomy, physiology (including pharmacology), biology (zoology and botany), chemistry and physics should be provided. The total cost of the buildings is put at \$800,000, while it is estimated that an annual expenditure of \$102,500 for teaching will be necessary. Toward all this little or nothing has so far been subscribed by the public to whom a strong appeal was made not long ago by Lord Roseberry, Chancellor of the University, and the other principal officials of the University. It is almost hopeless to ask a British Government for substantial help in furtherance of such a scheme, and for some reason or another millionaires do not appear to find a stimulus to generosity—or self-advertisement—in the University of London. Yet there are here the makings of a university—particularly in the department of medicine—such as the world has hardly yet seen. The fact is, I believe, that there has been so much squabbling about trivialities and so much jealousy and narrow-mindedness among those who undertook the reconstitution of the University of London that people are disgusted with the whole thing. The struggle has been going on for nearly a score of years and is not yet finished. But it really seems as if the obstructives were about to be beaten all along the line, and London at last to have a living teaching university instead of a system of examining boards.

A triangular duel is now being carried on between St. Bartholomew's, King's College and the London hospitals. All three institutions want money badly, and each is angry with the other for asking help from the public. St. Bartholomew's is the oldest hospital in London, its foundation dating from the twelfth century. It is also the richest, having a revenue of half a million dollars a year. The other hospitals therefore profess great indignation that so wealthy an institution should stoop to send round the hat, and "queer their pitch," to use the language of other members of the mendicant fraternity. The authorities of King's College Hospital not long ago, intimated to those of St. Bartholomew's that if they persisted in the appeal they would do their utmost to spoil their chance. Last summer the London Hospital strained every nerve to forestall St. Bartholomew's in its attack on the public purse. All this is unedifying and likely to be detrimental to London

hospitals generally. St. Bartholomew's wants a trifle of \$2,500,000 to rebuild the whole hospital, which is antiquated and inadequate to modern requirements. King's College Hospital wants a vast sum to enable it to migrate to South London where it is thought it will be more useful. It is very doubtful whether in either case the money will be forthcoming. Part of the opposition to the St. Bartholomew's scheme comes from one of our "yellow" journals, the *Daily Mail*, which, rightly or wrongly, is supposed to derive its inspiration from Sir Henry Burdette who poses here as the supreme and infallible authority on everything relating to hospitals. However this may be, someone who finds a mouthpiece in the *Mail* evidently wishes that the hospital should cease to exist, and be replaced by two smaller institutions in the country. I cannot think, however, that in a country so conservative of ancient institutions, so venerable a foundation will be allowed to perish. The medical staff—a body consisting of twenty-six of the most prominent members of the profession in London—are unanimous in urging that the hospital should be rebuilt on its present site, and the governors, after a good deal of persuasion, have virtually agreed to this course. A meeting is to be held on January 26 under the presidency of the Lord Mayor to arrange a plan of campaign for the purpose of raising the money required.

The London Polyclinic which owes its existence largely to the energy of Mr. Jonathan Hutchinson, is also in want of money. It has hitherto been mainly a place for the housing of specimens and pictures of out of the way diseases collected by Mr. Hutchinson, and for the demonstration of remarkable cases by that comprehensive specialist. It also published a journal which was practically an organ by means of which he kept the world enlightened as to his views on leprosy. The intellectual diet which he offered was good in its way, but it was not sufficiently varied for the average human digestion, and after a certain time surfeit necessarily followed. As in ancient times men got tired of hearing Aristides called the just, so here people have become weary of hearing the eminent surgeon speaking of himself. This of course is not the cause of the financial embarrassment of the institution that is officially put forward. Whatever be the explanation, it is a fact that the Polyclinic has failed to "draw," and its journal was a white elephant which cost it some three or four thousand dollars a year. Endeavors were made to get rid of this expensive luxury, but Mr. Hutchinson, who financed the institution, threatened to put up the shutters if this were done. To speak plainly, he has been to the Polyclinic like the Old Man of the Sea on the shoulders of Sinbad. On this account several of the men who took the most active part in starting it retired. The financial crisis became so acute a few months ago that the journal was discontinued. Now a *modus vivendi* seems to have been established. The journal has reappeared but in a much more modest form, and with considerable mitigation of the Hutchinsonian element. An appeal is made to the public for contributions and to the profession for a larger measure of support than it has hitherto given. The institution is unquestionably a useful one, but the truth is, it is not altogether popular with the profession. The hospitals look upon it as competing with them for cases, and the lectures have for the most part not been particularly attractive to general practitioners. If it should prove that the influences which have hitherto tended to paralyze its efficiency have ceased to be operative, the Polyclinic may yet have before it a career of great usefulness and prosperity.

For several years past efforts have been made to get

the Postmaster General to take steps for the repression or mitigation of tuberculosis, which is assuming the proportions of a veritable scourge among the employees of the department. The staff in 1899 numbered 82,172, and in that year there were 62 deaths and 83 retirements due to consumption—a total loss of 145 persons. To-day the staff numbers over 179,000 and the incidence rate of phthisis among them has certainly not diminished; it may fairly be inferred, therefore, that from 300 to 350 persons yearly fall victims to the disease. It is naturally the indoor staff that suffers most; among them it is estimated that the loss must be at least 2 per 1,000 per annum. The amount of sickness may be reckoned at 4 per 1,000. To appreciate the significance of these figures it must be remembered that before admission all candidates must pass a strict medical examination. Yet the mortality among those selected lives is considerably higher than among equal numbers of people taken at random. The heads of the department have shown the usual apathy of officials in regard to the matter. Their attention was drawn to the prevalence of consumption among their employees some eight years ago. It was not till two years later that even the small step was taken of prohibiting spitting in the buildings of the department. Last year, after repeated representations had been made, orders were issued that war was to be made on dust and proper means of ventilation provided. This order, being the outcome of imperfect conviction on the part of its framers, was carried out in a most perfunctory manner. All post-office work is necessarily dusty, and the dust has never been really got rid of. Walls were treated by a dry cleaning process which simply removed the dust from one place to another; at the Central Office all the cleaning of walls and floors is done in the presence of the staff, who have thus a largely increased chance of inhaling the germ-laden dust. The mail bags, coming from all parts of the world—sometimes through infected areas,—gather dust of all kinds on their way and are never disinfected. The ordinance against spitting was practically ignored. In short, no proper precautions have ever been taken, and a part of the Central Office is called by the staff the "Cave of the Troglodytes," owing to its darkness and its want of ventilation. Some 300 persons work there in artificial light all day long and numbers of them have to be removed owing to the injury done to their health. Many of the provincial post offices are as bad or even worse. The evil is so grievous that the employees have now determined to erect sanatoria for themselves. They hope to obtain some help from the Postmaster-General, but they know how difficult it is to induce those in charge of the public money in this country to loosen their purse strings and they are prepared to do without assistance from the State. It will be a disgrace to the Government if such a state of things in one of its great departments is allowed to continue without any attempt at redress.

On January 12, Dr. Ford Robertson, Pathologist to the Scottish Asylums opened a discussion at the Society for the Study of Inebriety on the pathology of chronic alcoholism. He said that the experimental investigations of various workers had clearly shown that chronic alcohol poisoning had a very harmful action on the defensive mechanism of the body. In addition to the weakening of the general immunity, there was an impairment of the local defences, especially in the upper portion of the alimentary tract, by the direct action of the alcohol. The chronic catarrhal changes, at first due to the action of the alcohol, became intensified by bacterial action, and a condition of chronic toxic infection from the alimentary tract was gradually established. Consequently the individual gradually developed various other disorders, located in accordance with his pow-

ers of resistance and various accidental circumstances. With regard to the inimical action of alcohol on the race, Dr. Robertson maintained that in this country alcohol was at the present moment one of the most potent causes of genetic variation, as it was unquestionably of somatic variation, and that the incidence of disease dependent upon defective resisting power on the part of the individual was thereby enormously increased. If these views were in accord with the facts, it was plainly the duty of a nation to do everything in its power to remove from its environments every inimical condition to which there was imperfect adaptation. He entirely dissented from the doctrines of the Archdall Reid School in regard to the importance of "alcohol and disease" as causes of human evolution.

The prejudice against cremation is yielding slowly but steadily. Nine crematories are at present at work in England—at Woking, Golder's-green, Manchester, Glasgow, Liverpool, Hull, Darlington, Leicester and Birmingham. One is being erected at Ilford, and others are proposed in St. Pancras, and at Bradford and Newcastle. On an average 500 cremations have taken place in Great Britain yearly—about three hundred in London, and two hundred in the provinces. Ireland has not yet adopted the system, and the Cremation Act of last year does not apply to that country. Hull was the first city in this country to possess a municipal crematorium, and it was also the first place where such a building was erected in a cemetery. The idea of the advocates of cremation was to have all crematoria in churchyards. Strong opposition to this course was taken by some of the English bishops, but sanction has been given to the erection in the cemetery of the new crematorium at Ilford.

REGARDING THE OWNERSHIP OF THE NAME VALENTINE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: A concern, styling itself the A. S. Valentine Chemical Company, recently sprung into existence, is advertising a preparation in the form of a capsule for which it claims scientific and wonderful value in the treatment of gonorrhea, its complications and sequelæ.

Investigation shows that: This A. S. Valentine Chemical Company is a corporation formed under the laws of the State of New Jersey, and that its incorporators are A. F. Evans, Frank L. Shelton and Nannie L. Shouse, all residents of Kansas City, Mo. This company has a small office at a pretentious address in New York City, which address it uses in its advertisements.

The alleged "literature" offered in these advertisements consists of some extraordinary assertions, contains no records of scientific investigation, no clinical reports and no signatures of physicians.

The capsule they sell is a gelatine-coated thick fluid, bearing the name "Benzol-Capsule Valentine." The contents of the capsule have been represented as "distilled and encapsuled by Valentine's special process."

As is admitted by the person in charge of the office, who is one of the directors, no person by the name of Valentine has ever been connected with the A. S. Valentine Chemical Company, nor has any person with this surname given it his or her consent to the use of this name.

Whatever may have influenced this concern to select the name Valentine as a part of its corporate name, the fact that Valentine is my name, and that I, by my writings, have brought this name prominently before the Medical Profession in connection with the study and treatment of gonorrhea, and kindred diseases,

makes it incumbent upon me to prevent, as far as lies in my power, any deception of the Profession and the public by the misuse of my surname. It would be an injustice to my colleagues and to myself were I, by silence, to lend credence to the inference their advertising obviously suggests. In order, therefore, to protect the Profession, the laity and myself, I hereby beg to call attention to the following facts:

1. That I have, in all my writings on gonorrhea, its complications and sequelæ, emphatically expressed my conviction that no drug or combination of drugs administered internally can be a specific in the treatment of these diseases.

2. That no drug or combination of drugs given by the mouth can destroy gonococci.

3. That I do not know the contents of the capsules sold by these people, and that I certainly do not recommend them or any other secret preparation.

4. That neither I, nor any relative, nor any acquaintance of mine, is in any manner connected with the A. S. Valentine Chemical Company.

5. That on January 7, 1904, through my legal adviser, Henry C. Quinby, Esq., of this city, I formally requested the A. S. Valentine Chemical Company to desist from the use of the name Valentine, and upon their refusal I caused a petition for an injunction against their so doing to be prepared for filing in the Circuit Court of the United States.

On January 20, the counselor of the so-called Valentine Company had an interview with my legal adviser, Mr. Quinby, which resulted in the former unequivocally advising his clients to cease using the word Valentine in any manner whatever.

I will thank any of my colleagues to inform me of any violation of this promise, so that I may, for the sake of the public, the Profession, and my own sake, prosecute as vigorously as the best possible counsel and any sum of money can.

Most respectfully,
FERD C. VALENTINE

New York, Feb. 1, 1904.

THE PATHOLOGICAL EXHIBIT AT THE TUBERCULOSIS EXPOSITION, BALTIMORE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Probably the most significant, if not the most interesting, fact connected with the Tuberculosis Exposition held at the Johns Hopkins University from January 25 to February 1 was the remarkable interest shown by the public generally, especially the ladies, in viewing and studying the pathological exhibit.

This part of the exhibit was held in a room devoted exclusively to it, and contained wax models from the Hôpital Saint Louis, Paris; the Surgeon-General's Museum, Washington; the Chicago Health Department; Agricultural Department, Washington; Boston Health Department, Dr. Theobald Smith; University of Pennsylvania, Dr. Ravenel; Adirondacks Sanitarium Laboratory, Dr. Trudeau; Biochemic Laboratory, Washington, Dr. De Schweinitz; Columbian University, Dr. Salmon; College of Physicians and Surgeons, Baltimore, Drs. Stokes and L. K. Hirshberg; Johns Hopkins Medical School, Drs. Welch and McCallum.

It is estimated that fully thirty thousand persons, not including physicians and students, viewed this part of the exposition, most of them being ladies. The original intention was only to permit physicians and students in the pathological museum, but the public generally took the room by assault, and it was necessary to have a constant corps of demonstrators present to make the exhibit intelligible and bring its lesson home to the lay mind. On one day, Saturday, fully seven thousand per-

sons must have visited this room, as estimated by the writer, who was demonstrating there. Not more than five per cent. of these were students, not more than fifteen per cent. were men.

The exhibit of tubercle bacilli in culture tubes, the process of making tuberculin, the dead bacilli stained under the microscopes, and Dr. Trudeau's latest method of immunizing rabbits interested the spectators most. These things seem to have a more dramatic appeal to laymen than we, as physicians, ever realize. The questions asked, and the general interest evidenced, made it difficult at times to keep the crowds moving on in order to make room for others.

There were about eighty species and varieties of living tubercle bacilli shown upon many different kinds of media, including sheep's serum, glycerin, glycerin bouillon, glycerin agar, glycerin gelatin, glycerin egg albumin, Dr. Salmon's new media, human blood serum, glycerin, etc. The best of these were sent by Dr. Theobald Smith, Dr. Ravelin and Drs. De Schweinitz and Salmon. Perhaps the culture which attracted most attention was a lineal descendant of Koch's original culture made in 1882. This was transplanted by Dr. Trudeau, and unfortunately before the exhibit closed, became contaminated with a penicillium fungus, due, no doubt, to the shaking up it sustained.

The most complete exhibit of dried, powdered, emulsified, glycogen extracted bodies of the bacilli, tuberculin acid, copper tuberculate, tuberculin O and R, were shown by Dr. Trudeau.

About fifty accurately reproduced drawings of photomicrographs of all stages and examples of tuberculous conditions, very much enlarged, were hung about the walls of the room. These skilfully made drawings were made by Dr. Charles Potter, one of the Johns Hopkins Hospital artists.

The pathological conditions were shown grossly by a most complete series from the museum of the Johns Hopkins and Physicians and Surgeons' laboratories. These included about fifty-odd specimens of pulmonary tuberculosis in all stages, apical, miliary, caseous, cavernous, fibro-caseous, calcareous, healed and bronchoglandular.

Scrofulous glands in all stages, both human and herbivorous. From fifteen to thirty specimens showed tuberculosis of the larynx. Several conditions of tuberculous pleurisy in cattle and human beings were shown. Miliary, conglomerate and solitary tuberculosis of the spleen and of the liver in Kaiserling's solution showed the original autopsy colors.

Three very rare examples of miliary and fused tubercles along the thoracic ducts were prominent in the exhibit. There were possibly ten or twelve jars each containing Kaiserling preparations of tuberculous pericarditis. Because of the publicity, the specimens of tuberculosis of the epididymis and ovaries were only shown privately. Bovine and human tuberculosis of the kidneys in various stages, one calcareous, together with tuberculous conditions of the ureters and bladder were presented. *Tabes mesenterica* and a perfect example of miliary tuberculosis of the omentum were much commented upon, especially a jar showing the large pendulous variety of tuberculous peritonitis. Miliary tubercles over the peritoneum were seen—probably ten different preparations, one of them sent by the University of Maryland.

Tuberculosis of the intestines was completely and clearly demonstrated by various ulcerated parts. One long stretch of intestine showing only two ulcers, one of which had perforated through the gut, causing death by a general peritonitis, another showing about two hundred shallow ulcers in a portion only 25 cm. long.

Tuberculous appendicitis, colitis and duodenitis were all there. Two samples of solitary tubercles in the adrenal glands were interesting, one of which had not produced Addison's condition. Tuberculous spinal and cerebral meningitis; caseation in the basal ganglia of the brain, and another case showing a large mass of caseation in the cerebellum were representative of cerebral tuberculosis. Tuberculosis of the bones were shown by three preparations of resected white swellings of the knee-joint, hip-joint disease, six caries of the vertebrae, several at the eleventh and twelfth thoracic. Osteomyelitis of the sternum, caries of the inframaxillary bone.

The wax models from the Surgeon-General's Museum were representative more particularly of tuberculous skin conditions. Lupus in almost every stage and upon every part of the body was visible. Palms of the hands, soles of the feet, ankle, leg, arm, neck, face, cheeks, nose, lips, were all reproduced in these wax models, with life-like appearance. One interesting set of models showed the lips and nose much involved in one, and in another showed complete restoration of the parts by the ultra-violet rays after a long course of treatment.

LEONARD K. HIRSCHBERG.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-eighth Annual Meeting held at Albany, January 26, 27 and 28, 1904.

(Continued from Page 238.)

SECOND DAY—JANUARY 27TH.

The Submerged Tonsil.—Dr. Thomas Harris, of New York, spoke of the symptoms dependent upon the covered condition of the tonsil seen in certain persons in which the pillars of the fauces have united over it. Under these circumstances chronic infections are not unusual, as the function of the tonsil is to protect the throat from the microorganisms which inevitably find their way into the mouth, and the tonsil is unable properly to perform its function. The individuals with submerged tonsils are more likely to suffer from sore throats and various other infections in the back of the mouth and in the fauces than are those whose tonsils are in normal condition. He suggests therefore the use of a tonsil punch for the purpose of setting such tonsils free and enabling them to carry on their proper function.

Chronic Laryngitis.—Dr. Z. L. Leonard, of New York City, gave some illustrative cases showing the tendencies of certain individuals to suffer from chronic laryngitis. When this affection is common, respiration is not carried on as it should be and as a consequence infections of the lower pulmonary tract are likely to follow. Such patients are especially likely to contract tuberculosis and this fact must be constantly borne in mind and treatment must be as careful as possible in order to prevent such an undesirable result. Patients are very apt to consider their condition as not very serious and its gravity must be made very plain to them, since it is well known now that the tubercle bacillus is very commonly to be met with in our large cities and unless respiration is nearly normal, tuberculous infections are sure to take place.

Suppurative Otitis Media.—Dr. J. F. McCaw, of Watertown, N. Y., said that it is surprising how many physicians fail to appreciate the significance of a discharge from the ear. How often, when parents come to the otologist with a child suffering from chronic suppuration of the middle ear, does he not hear that

the family physician pronounced it only a running ear and said that the child would outgrow it. Only too often the disease outgrows the patient and it can never be trusted to continue benign for any length of time. Dr. McCaw does not consider that radical measures should be employed in every case of running ear, but he pleads for appropriate treatment at the hands of some one who knows the precise significance and will be ready to recognize the danger signal. All cases of chronic discharge from the ear which show signs of tension in the antrum should be operated upon.

Irritable Bladder in Women.—Dr. R. L. Dickinson, of Brooklyn, said that the irritability of the bladder in females may be divided into various types, due to nervous conditions, chemical or mechanical influences, hyperemia or other pathological conditions. The more is known of the irritable bladder of females the more rare are frequency of urination and other irritable symptoms considered to be reflex. In very few cases is it considered to be due to the old cause so frequently appealed to, viz., a tipping forward of the womb. The most common form of irritable bladder is due to nervousness and may be consequent upon school examination, upon an attack of hysteria, or upon general nervous irritability. It will not infrequently be found that any unusual excitement causes certain nervous women to have a sort of bladder crisis as the result of their nervous condition. A simple excess in quantity of urine passed, due to drinking too large quantities of water, or to the superfluous amount of hysterical urine, may cause such nervous irritability. Other mechanical factors are prolapse of the bladder itself, or prolapse of the urethra or dilatation of the urethra. A not infrequent cause is masturbation. Infectious elements may enter into the problem and a trigonitis due most frequently to gonorrhea may be the cause. On the other hand, affections of the genital organs are in some cases followed by vesical irritability. Many women complain at their monthly periods of a certain amount of vesical irritability. At times local conditions, such as an inflamed meatus, or a urethritis may be the cause. The most important consideration in beginning treatment is to look for the cause of the condition. The quantity and quality of urine must be judged and such conditions as the caruncle of the urethra or chronic inflammation of Skene's glands must at once be looked for. When these are inflamed, tiny red spots are visible when the urethra is slightly turned out. At times these glands take on the form of retention cysts. Sometimes there are on each side of the urethra little urethral flaps, minute nymphæ, as Kelly has called them. These are not physiological barriers to infection, as has been said, but are true examples of partial prolapse of the urethra. Not infrequently it will be found that the gaping of meatus will admit the finger tip. Sometimes the meatus appears perfectly normal, when the patient is in the prostrate position, but the pathology of the situation will be recognized at once if the examination is made while she is standing up.

Treatment.—In cases of prolapse of the bladder this should be fixed. The upper portion of the bladder is more tolerant of stitches than its base. If the uterus seems to be giving any trouble because of tendency to prolapse it should be suspended at the same time. Occasionally patients complain that every time that they cough or sneeze or even laugh violently, there is a gush of urine. The old plastic operation of twisting the urethra on its axis, which used to be performed in these cases, did not always give satisfactory results. In recent years, paraffin has been injected alongside the urethra, and this has given much better satisfac-

tion, while the procedure has so far been associated with no inconveniences or sequelæ.

Uterine Fibroids.—Dr. W. E. Ford, of Utica, in giving his experience of uterine fibroids, said that twenty years ago he saw many more of them than at present, not because they were actually more frequent, but because they had not been operated upon and there was an accumulation of them, while now of course every town has its own surgeon who can operate upon them without any hesitation. Dr. Ford has tried many ways and for a number of years employed electricity. This seemed to improve the general condition of the patient and not infrequently to cause small fibroid tumors at least to decrease in size. In some cases, however, no effect at all seemed to be produced. In one case there was a death in the use of the electric needle. This was due to infection from a gonorrheal salpingitis, which set up a rapidly fatal sepsis. He employed ergot in a certain proportion of cases, and while he found some improvement in the symptoms, especially in a decrease of her hemorrhage, from its use, he does not think that this ever made the tumor any smaller. At times, when the tumor is of the submucous variety, the contractions in the uterine wall set up by ergot, forced the tumor into the lumen of the uterus, and thus made it easier to remove. With regard to the tying of uterine arteries for the purpose of reducing the size of fibroids, Dr. Ford has not had any special success. The catching of the arteries is a difficult indefinite method without any satisfaction and involving considerable risk. Dr. Ford used thyroid extract in a number of cases, but does not think that there was ever any special benefit from it and does not think that this substance has any control over hemorrhage. He used adrenalin, however, with excellent results as regards hemorrhage. Now that uterine fibroids are usually smaller when they come under observation than before, operation is the most suitable method of treatment. Dr. Ford has operated sixty-one times in 15 cases, having to cut the tumor into pieces in removing it.

Treatment of Diffuse Septic Peritonitis.—Dr. Russell S. Fowler, of Brooklyn, gave the results of 100 cases of diffuse septic peritonitis treated by thorough drainage of the abdominal cavity with the head and trunk in an elevated position. No case was refused treatment no matter how desperate it seemed, and though these cases are usually considered hopeless, sixty-seven of the patients recovered. Most of the cases of general peritonitis followed rupture of the appendix. The technic of the method of treatment included the making of a small incision, only sufficient to enable the operator to get at the diseased parts, the isolation of the chronically inflamed region with laparotomy pads, and the washing out of the septic parts with peroxide and a saturated solution of bicarbonate of soda. After the foaming was over the peritoneal cavity was washed out with normal salt solution. All pockets of pus were opened up and flooded with hot saline solution. The intestines were not allowed to escape during any portion of the treatment. Drainage was made as perfect as possible. Usually a glass tube was inserted in a piece of rubber dam and wicks of gauze were carried down to the bottom of it so as to draw up any material that might gather in the pelvis and yet allow of the aspiration of the tube occasionally. If many pockets of pus were found throughout the abdominal cavity, from twelve to twenty wicks of gauze were carried into these. The patient's head and trunk were elevated at least one foot, sometimes more. This was accomplished by raising the upper end of the mattress over a special arrangement in the hospital or over

the back of a chair. All of the cases improved immediately, at least for the time being. The vomiting stopped, if there had been any, and gas was freely passed by the rectum. Only in three very septic cases was there failure of this improvement noted.

Asthenopia.—Dr. D. H. Wiesner, of New York, said that the complaint of weak eyes and of poor sight was becoming more and more prominent. This is partly due to the increased use of the eyes under artificial light, but it is also due to a general deterioration of the nervous system in the rush of life and the fierceness of competition in our cities. Weak eyes are not found so commonly in the country. The frequency of weak eyes can be noted from the number of signs of refracting opticians to be found on the streets. Besides these, at least 50 per cent. of the oculist's work is concerned with eye-strain. Under many hours of artificial light the ciliary muscle gives out. The most important part of treatment of these conditions is an improvement in the general nervous tone of the patient and the insistence on a better living environment.

Eye Muscles and Others.—Dr. Lucien Howe, of Buffalo, N. Y., demonstrated how the normal muscles of the body may be tested and their strength expressed in symbols. He then called attention to the fact that the strength of the muscles of the eye correspond to those of the body. He has made a series of observations upon soldiers stationed near Buffalo and found a distinct ratio existing between the ordinary muscularity and that of the eye muscles. It is important, when there is some defect in the musculature of the eye, to treat the patient by a general development of muscle tissue, which will eventually bring with it an improvement in the eye muscles also. If this should be accomplished there would be no need for so many tenotomies as there are at present and there would not be so many serious reflexes set up because of failure of muscle balance.

Diagnosis of Glaucoma.—Dr. D. B. St. John Roosa, of New York City, said that while specialists complain of encroachment upon their special fields by the general practitioner, this is not true of the eye specialist, and while for such conditions as cataract or strabismus it is the ophthalmologist who should see the case, there are many conditions of the eye that the general practitioner is bound to recognize or else serious harm will result. Glaucoma is one of these and the most important. It has an unfortunate name, since the greenish swelling implied by the name glaucoma, a greenish-grey tumor, is only in the last stage of the disease, and if it should be waited for, will prove the loss of the patient's sight. Unfortunately, if not diagnosed, it will cause the loss not alone of one, but usually of both eyes. The most important symptom of the disease is the increase in the tension of the eyeball. General practitioners should accustom themselves to the recognition of normal tension in the eye by the habit of palpating normal eyeballs.

Course of Glaucoma.—Patients suffering from this severe affection are usually past middle life and give a history of arthritic tendencies; they come to the physician with a watering eyeball, or with a red zone around the cornea. They complain of dim vision and pain, which is of very distressing character and sometimes gives rise to the mistaken diagnosis of neuralgia of the eye. There is no such thing as a neuralgia of the eye, in the ordinary sense of a neuralgic pain not due to some serious condition. It will be found that their corneas are insensitive. The eyeball will be found distinctly hard to the touch. If such a case is neglected, blindness is inevitable. The treatment needed for these cases is the insertion of some eserine solution of the strength of two grains to the ounce. This at once

gives the patient some relief. If there is any further progress of the symptoms an iridectomy must be done. Some of the ideas with regard to glaucoma are needlessly confused by the extraordinary nomenclature which has gathered around the affection; there is acute, simple and chronic glaucoma, then fulminant, hemorrhagic, prodromal, evolutum, absolutum, and primary and secondary glaucoma. But these are the only terms that should be used.

Climate of Long Island.—Dr. W. H. Ross, of Brentwood, Long Island, called attention to the fact that while Long Island is often considered to be the home of marshes, malaria and mosquitoes, the actual state of affairs on the Island is very different. It consists mainly of a dry, sandy plain. Its nearness to the ocean makes it much cooler in summer time than New York City, or the regions lying farther inland. On the other hand, the ocean has during the winter time a tempering influence on the cold, so that the average cold is not nearly so severe as in New York City. The mortality of the Island is very low, compared to other parts of New York State, or of New Jersey, and it compares very favorably in this respect with the Berkshire Hills in Massachusetts. When the true climatic conditions that exist on Long Island come to be recognized, it will be used by New York physicians much more than at present as a place to which patients will be recommended in many chronic conditions. It is especially favorable for chronic nervous affections and for insomnia. Visitors are often surprised at how well they sleep and for how long, though this had been one of the symptoms giving them most bother before they came on the Island.

Placenta Previa.—Dr. Scully, of Rome, N. Y., discussed nine cases of placenta previa that he has had under observation, for one of them, which occurred quite recently, he was called in consultant practice and understood that the woman was bleeding very severely. When he reached the apartment he found the floor covered with blood and all the clothing wet with it. He found, however, that both child and placenta had been delivered and that the woman was bleeding no more. The placenta was wrapped over the child's head somewhat like a hood and had evidently been forced out in this position under the influence of active contractions of the uterus in a strong woman. This gives an excellent idea of how nature is sometimes able unassisted to overcome the danger from placenta previa. It shows, too, the necessity for active interference in order to secure delivery of the child if the mother is to be saved, for the only hope of cessation of bleeding is in the firm contraction of the uterus. Dr. Scully believes in podalic version in order to facilitate rapid extraction in these cases.

Treatment of Cancer by Its Own Toxin.—Dr. P. J. McCourt, of New York, described certain cases of cancer treated by means of toxins obtained from cancers removed from other individuals. A glycerinated product is used for this purpose and the dosage is by the mouth. The difficulty is, according to Dr. McCourt, the selection of the proper form of toxin. As far as possible the toxic material used must have been obtained from a cancer in the same stage as that which is under treatment. During the use of the remedy not much animal food must be consumed and all stimulants, especially malt liquors, must be avoided. All strong liquors become absolute poison. The result of the administration of this material is the occurrence of a critical diuresis, diaphoresis, diarrhea and erythema. The remedy must be employed about twice a day, in the morning and evening, when the stomach is empty. In mammary cancer and in uterine cancer good results have been obtained. This remedy

has proved also of good service in the treatment of lupus. It may be employed with decided advantage after operation to prevent the recurrence of cancer.

Radioactivity.—Dr. J. S. Wight, of Brooklyn, discussed recent researches in radioactivity and electricity with their bearing on radiotherapy and the legal status of these new remedies. With regard to radium he insisted on the possible good effects that would be obtained in malignant disease and in other forms of external affections. He also suggested the possibilities of a transmitted radioactivity proving useful in the treatment of internal affections. With regard to the Roentgen rays, he showed the possibility of using certain secondary radiations that are contained in the Roentgen rays, which promises to do away with the danger of burns and yet retain all the therapeutic activity of this peculiar source of energy. He considers that as yet medicine is only entering upon the discovery of a series of the therapeutic results of great importance in the employment of these new materials and forms of radiation. With regard to the legal status of their use he insisted that only those who are experts should be allowed to give evidence in trials where such remedies have been employed and suggested the possibilities of blackmail that are involved in injuries that may result or in supposed failures to cure. Dr. Wight suggested that the heating of radium had a definite effect upon its radioactivity, and that it seemed not improbable that the employment of heat would be an important adjunct in treatment by means of radium. He also suggested that any negative electric body, if held in the air becomes radioactive, and though this radioactivity gradually disappears afterward there are evident possibilities of the use of this form of energy without an expensive outfit such as might be required for large quantities of radium. Even rain drops become radioactive during their passage through the atmosphere. When this radioactivity exists on metals it disappears when the superficial surface of the metal is dissolved by means of acid. This seems to be a proof that it exists only on the outside of the radioactive bodies. A curious phenomenon is that the acid becomes radioactive, though it does not retain this property for a long time.

Mineral Waters and Radium.—In certain mineral waters a radioactive gas has been found. In so many different forms of mineral waters has this been true that it has come to be a general opinion that the radioactivity of mineral waters is the important element in their therapeutic effect. It has long been known that artificial mineral waters, though made to conform as closely as possible with the chemical contents of natural mineral waters, never act quite as efficiently, nor do the salts abstracted from mineral waters and then redissolved in water prove as efficient. It would seem that in the phenomena of radioactivity, there may come the explanation of a very vexed problem in therapeutics—the effect of natural mineral waters.

Lesions Around the Knee-joint.—Dr. Nathan Jacobson, of Syracuse, said that there are a number of lesions around the knee-joint which may easily lead to confusion in diagnosis. One of these and perhaps the most important is acute osteomyelitis, which usually follows some trauma, but may not necessarily do so, and is mistaken not infrequently for acute rheumatism. He has found abscesses forming bone and cause the separation of large sequestra because of the formation of pus in cases where the beginning symptoms of the disease gave no idea of the seriousness of the affection. Besides osteomyelitis tuberculosis is of course, frequently around the knee-joint. One of Dr. Jacobson's recent cases was a tuberculous abscess at the head of the tibia, though there was no involvement of the

knee-joint itself. There are certain lesions that seem to occur by preference near the knee-joint without known cause. One of these is sarcoma. It must not be forgotten that if these tumors are recognized sufficiently early and are not of an especially malignant variety, amputation high up will prove life-saving. Round-cell sarcomata have not a very favorable prognosis, however, recurring in spite of amputation. Spindle-cell sarcomata usually do not recur. In a recent case under Dr. Jacobson's care tuberculous affection of the femur presented most of the supposed pathognomonic features of sarcoma, including even fracture of the bone for a very slight cause, yet proved on careful pathological examination to have no malignant elements at all.

Surgical Cases in Albany.—Dr. Albert Vander Veer, of Albany, reported 615 surgical cases attended at the Albany Hospital during the year 1902 and the beginning of 1903. He found that with regard to fractures of the jaw, after having gone through all the supposed improvements of wiring and new-fangled splints of many minds, that the best method of treating these cases is by the application of an interdental splint. For this purpose a dentist is attached to the hospital staff and there is no doubt that patients have a greater degree of comfort and that these fractures heal sooner with less anxiety on the part of surgeon and patient, and with better results than under any other circumstances. Dr. Vander Veer considers that enlarged glands in the cervical region should be removed early. They constitute a focus of disease that may easily spread. Patients should be impressed with this idea. Otherwise enlarged cervical glands are allowed to remain and become the source of generalized infection, or later in life, of pulmonary consumption. Treatment, except eradication, is almost sure to be disappointing, and consequently it is better to advise radical measures. With regard to cancers Dr. Vander Veer has had excellent results by doing the complete operation, removing the glands in the axilla, as well as above the clavicle. In all cases of tumors of any considerable size the pectoralis major and minor muscles were also removed. With regard to sinuses of the gall-bladder region, after operative procedures, he has not had the difficulty in securing closure that so many surgeons find, because by dropping from three to five drops of pure carbolic acid into the sinus he has succeeded in causing them to close. In one operation done subsequent to a laparotomy that had been followed by hernia, one of the most serious complaints made by the patient before operation was of pain in the scar. This took the form of acute discomfort, as if she were being pricked by a needle. During the hernia operation a hypodermic needle that had broken off near the shoulder was found imbedded in the scar. It was no wonder that she had a pricking sensation. Nothing was said to the patient after the operation, and she left the hospital no wiser than before. After hernia operations, Dr. Vander Veer does not believe in the use of a truss, as it serves rather to weaken the abdominal wall at the point at which it is applied than to protect the intestines from protrusion.

Gunshot Wound of the Brain.—Dr. John A. Wyeth, of New York, described a case in which the patient was wounded by a bullet entering in the region of the forehead and evidently passing through the frontal lobes of the brain. It was thought that he was dead at first, and then that he would surely die, but the opening in the skull became plugged by granulation tissue and he recovered almost completely. There were no motor or special sense symptoms, though for a time the patient talked incoherently and had to be watched. There was considerable weakness of the right side, but no other special symptom. In operat-

ing the orbital plate was pierced in order to obtain drainage, and then recovery was without incident. All of his motor symptoms disappeared, but there has been a slight loss of intelligence. Considering that the operation was not done for several months after the accident, this seems to be an excellent result.

Tuberculous Myositis.—Dr. William B. Brinsmade, of Brooklyn, reported a case of injury to the leg on the outer side, which was followed after some time by swelling from the ankle almost up to the knee. This swelling was symmetrical and was evidently due to some pathological condition of the subcutaneous tissues. The skin was perfectly movable over the swelling. At first a sarcoma was suspected to be present, but a portion of the tumor was removed, and after careful examination proved to be typical tuberculous tissue.

Staphylococcus Aureus Infection.—Dr. Arthur G. Root, of Albany, reported some cases of *Staphylococcus aureus* infection, which had been observed in the industrial schools at Rochester. This microorganism often occurs in the skin, and may usually be found in the mouth, the nose and the ear. In the first case reported the patient suffered from a boil from which he seemed to have recovered entirely when about ten days afterward his right knee became swollen and painful. The swelling was not marked, but the tenderness was excessive. The temperature rose to 104° F. The case was diagnosed as acute rheumatism, but did not improve under the administration of the salicylates. After a time the lower portion of the thigh was found to be involved and an abscess in this situation was opened. Pus was found beneath the periosteum of the femur. The knee itself continued to be troublesome, and as the temperature was intensely septic, amputation finally had to be performed. The second patient had a run-around on the nail, which lasted for a considerable period, and finally led to some lymphangitis. One day his temperature rose to over 107° F. The sore around the finger-nail was then opened very completely and hot bichloride applications were made. Notwithstanding this the patient continued to have a chill every day and a temperature of 105 to 107° F. In fourteen days there were fifteen chills and the average highest temperature was 106° F. Careful examination of the blood was made and no plasmodia of malaria were found. Quinine produced no effect upon the temperature and the secretions were sent for examination to the Bender Laboratory in Albany. There a coccus was found growing like the staphylococcus and producing no color. It was considered to be the *Staphylococcus albus*, which very seldom, however, has anything like the virulence that seemed to be present in this case. After cultures of the microorganisms had been grown in the laboratory for ten days a certain amount of color appeared in them. After a time the golden yellow color was manifest.

Trachoma Treatment Without Operation.—Dr. Frank J. Parker, of New York, said that an impression prevails that all cases of trachoma need to be operated upon. This is not true and on the contrary most of them do better under careful non-operative treatment. Cases of follicular trachoma with soft lesions need to be operated. If trachoma is operated upon in the first stage operation is apt to be followed by hardening of the conjunctiva and irritation of the cornea with the production of pannus. This opinion, which was held by the older ophthalmologists, is now being generally accepted again. Where trachoma is under treatment it is important that special hygienic directions should be given the patient for the protection of others. The greatest care should be exercised especially as regard the hands. These must be cleaned often and the patient must be warned of the danger of

communicating his affection. All patients suffering from trachoma must sleep alone and their handkerchiefs, towels, etc., must be absolutely personal. The patient's general condition is important. An outdoor life and good nutritious food must be advised. For local treatment the newer silver preparations, and especially argyrol, seems to be the most efficient.

Aphasia and Agraphia.—Dr. Edward E. Fisher, of New York, discussed sensory and motor aphasia, and especially their relation to agraphia and the possibility of the existence of a special center for writing. Sensory aphasia, he insisted, is often accompanied by some loss of the sense of the use of things, that is, a certain amount of apraxia. It is possible that there may be a special writing center, situated in the second frontal convolution. It seems much more probable, however, that the cases in which there was a supposed lesion of a special writing center were really affections of the association fibers of the various centers for speech. Professor Starr believes in the existence of a special writing center, but as people may learn to write with their teeth, or with their toes, either one of which parts is controlled by centers distant from the supposed writing center, the opinion does not seem probable. Dr. Joseph Collins says that there has never been a case of pure motor agraphia, and that there has always been some associated lesion. Hence there is no special writing center. With this opinion Dr. Fisher is in full accord.

SYMPOSIUM ON ABDOMINAL PAIN.

Abdominal Pain in General.—Dr. John H. Musser, of Philadelphia, considered especially abdominal pain consequent upon abnormal conditions of the stomach, liver and pancreas. With regard to pain in the abdomen, he insisted that where toxemia existed, the physician should be very wary of coming to conclusions entirely dependent on the complaints of the patient. Under these circumstances not unfrequently the patient is not able properly to locate or to tell the character of his pain. Spasm of the abdominal muscles always accompanies pain in the abdomen when it is severe, but will not be found in women with very distended abdomens. Rigidity is much less marked in women than in men, owing to the fact that their muscles are weaker. Toxic conditions induce apathy. When rigidity is absent, if leucocytosis be present, too much stress must not be laid upon this fact since the leucocytosis is evidence of the existence of a serious condition. In athletes intense muscle spasm may take place and even a slight colic may produce board-like tightness of the abdominal muscles that would seem to indicate some mortal illness.

General Abdominal Pain.—In intoxications, as in uremia, for instance, or, as the French say, in affections of the kidney, especially those connected with pregnancy, pain is apt to be a forerunner of other uremic symptoms. It is usually situated in the epigastrium, or in the right or left hypocondrium. It is not unusual to find that such nephritic conditions have been diagnosed as due to gastritis. Chronic gastritis may, however, give a sense of discomfort, though it must not be forgotten that there are many referred pains in this region and that the pancreas and the gall-bladder, as well as the pylorus, may all cause manifestations in the epigastrium. It used to be the custom to talk of hysteria as causing pain in the abdomen. The rôle of hysteria has become narrower, however, as diagnosis has become better, and it is a good maxim that the word neurosis covers a deficiency of diagnosis, whether that deficiency be due to the physician or to the present state of medicine. The more so-called hysteria Dr. Musser sees the more he thinks that there is some lesion present. It must not be forgotten that aneurism

not infrequently causes abdominal pain. Caries of the vertebrae may also cause it. The spondylitis deformans described by Marie may be a source of abdominal pain apparently because of the crowding and uncomfortable position of the abdominal organs which it causes. Certain neurotic conditions connected with neuritis, as for instance diaphragmatic rheumatism, these may give pains simulating perihepatitis. In a case under Dr. Musser's care not long since, the patient was operated upon for hemorrhoids, and when the diaphragmatic pleurisy developed for a time there was serious fear that perhaps infecting material had found its way along the portal veins of the liver and set up a serious condition around this organ.

Transferred Pains.—Pneumonia not infrequently causes pain in the abdomen and no pain in the thorax. This is especially true in children. It may simulate appendicitis, or at least acute peritonitis, and operations have even been performed with a mistaken diagnosis where subsequent investigation showed the existence of pneumonia. Sometimes, however, pneumonia is central and does not develop enough to be recognized for several days after the operation. Pericarditis may occasionally cause epigastric pain. The pain of pleurisy may also be transferred and apparently be much lower than it really is, or it may be reflected along nerves leading to abdominal muscles. Angina pectoris not infrequently causes pain that resembles an affection of the stomach. On the other hand, the congestion of the liver due to a failing heart may give rise to a suspicion of the presence of gall-stones. The liver becomes quite tender and may be also acutely painful. The pain of pyloric spasm may simulate gastralgia and may also be mistaken for cholelithiasis. Occasionally when pain is to be expected it may be absent. Gangrene, of course, may proceed absolutely without any pain in certain recently described cases. Intussusception has occurred as the result of paresis of the intestines from thrombosis of the abdominal veins, and yet, notwithstanding all these severe pathological conditions, no pain was present. The reason for all this was easy to see when operation was performed, as there was absolutely no peristalsis at all. The intestines were as limp and motionless as an autopsy, and there was the very feeling of a living autopsy. Slapping and hot applications had no effect in bringing on peristalsis, and the patient died.

Pain in the Abdominal Walls.—Dr. Joseph D. Bryant, of New York, said that pain in the abdominal walls was always referred along to the distribution of the spinal nerves. This often causes a very pretty demonstration of the distribution of nerves in such diseases as Pott's disease. This affection is not infrequently missed. In three cases recently under Dr. Bryant's care, the spinal deformity was not marked at all, and in at least one case would not have been discovered, except by an expert. Certain localizations of pain have a definite significance. In the iliac region pain with tenderness and rigidity means mostly appendicitis. It must not be forgotten, however, that pain may occur in the abdominal walls without there necessarily being any organic affection beneath. There may be an intercostal neuralgia of the abdomen, even though there are no ribs, the nerves corresponding to those in the intercostal spaces being distributed to the muscles of the abdominal wall, as regularly as in the thoracic region. It would be possible for the reptilia, without any ribs, to have a series of intercostal neuralgic pains all along their bodies.

Pseudo-Appendicitis.—With regard to appendicitis it must not be forgotten that certain functional neurotic conditions may be of importance. A patient recently admitted to Bellevue, after an alcoholic debauch,

claimed that he was suffering from all the subjective symptoms of appendicitis. There was even some slight fever and, of course, some rise in the pulse rate from the effects of the alcohol. He asked that his appendix be removed. There was already a scar in the appendicular region, and careful inquiry elicited the fact that his appendix had been removed at another hospital, when he was complaining of the same set of symptoms, though nothing wrong was found with it. A second operation had even been performed at a third hospital and now the patient was once more ready to be operated upon. In certain cases highly neurotic females are apt to be so taken by the idea of appendicitis as to simulate for themselves its symptoms. In one case operated upon it was found that the girl had never had an appendix. That organ was represented by a slight puckering of the cecum and nothing more. Some time afterward she developed the same set of symptoms for which she had originally been operated on, and the surgeon at another hospital was about to make an incision in the line of the old scar when he thought it better to consult the records of the previous hospital, when he found what was the true condition. The pleural nerves are distributed or at least are joined by branches to certain nerve fibers that are distributed over the upper part of the abdomen. This important fact must not be forgotten. Surgeons will find that they are greatly helped in making the diagnosis of conditions accompanied by abdominal pain and tenderness if they look up carefully the nerve supply of the part of the abdominal walls affected.

Intestinal Pain.—Dr. Frederick Holme Wiggin, of New York City, discussed the diagnosis of conditions which cause intestinal pain. He gave the details of the parts of the intestines and the special forms of pain caused by affections in them. Tenesmus characterizes an affection of the rectum or lower part of the colon, repeated colic is indicative of enterostenosis; appendiceal pain is localized in the right iliac fossa, duodenitis gives mucus in the stools with pain in the right hypochondrium. In children under four years of age sensitiveness along the course of the colon, accompanied by intense gripping pains, is caused by enterocolitis. Definitely localized pain accompanied by increase of peristalsis, with the formation of a tumor due to distended coils of intestine, is indicative of occlusion of the intestine. Lead colic would seem to be easy enough to recognize, especially when the occupation is taken into account and the blue line can be found on the gums, yet it is the experience of almost every surgeon to find occasionally that patients are supposed to be suffering from some other intestinal condition when it is really lead colic. Tuberculous peritonitis would seem to be reasonably easy of recognition, especially when it is remembered that before the occurrence of ascites enlarged glands may sometimes be felt in the abdomen and the condition is always accompanied by a gradually growing discomfort. It sometimes happens nevertheless that this condition develops so insidiously that when young patients are brought to the surgeon the ascites is the principal symptom. Most of the suddenly developing painful conditions referred to in the intestines require immediate operative interference. On the other hand, not all sudden pains are appendicitis. Typhoid fever has been mistaken on a number of occasions for appendicitis, and the differential diagnostic signs must be borne in mind. In typhoid fever the temperature runs high, the pulse is usually low as compared to the amount of temperature, and there is a low leucocyte count. In appendicitis the fever is usually not marked, the pulse is high, and the leucocyte count is one of the characteristic signs of the condition, the white cells being

very frequently increased to twice or three times their ordinary number.

Pneumonia and Appendicitis.—There might seem to be no possible connection between pneumonia and appendicitis, and no possibility of mistaking one for the other. As a matter of fact, however, pneumonia not infrequently causes an acute pain in the abdominal region. Pneumonia of the right lower lobe may by reflex action cause pain in the lower right quadrant of the abdomen that may easily be mistaken for appendicitis, as the pulse and temperature are sure to remain high; operations have even been performed, but as pneumonia patients are not good subjects for operations, the result is usually fatal. The best differential sign is the pulse respiration ratio. If the respirations are increased more than they should be considering the height of the pulse then there must always be suspicion of pneumonia involvement.

Undigested Symptoms.—Dr. Robert F. Weir, of New York, said that a distinguished financier remarked, not long ago, that the stock market was all right, but that there were a number of undigested securities. A similar remark might be made with regard to the pain symptoms of abdominal conditions. Our knowledge of diagnosis is all right, but there are a number of undigested symptoms whose exact value must yet be determined. It is extremely difficult for the surgeon to decide not only what to do, but when to do it, and most important of all for him to decide when not to wait. As a rule the surgeon must either make his diagnosis and then the decision as to operation from that, or else he must make an exploratory laparotomy. There is no doubt that often he does not know exactly what the condition is, yet he must conclude as to the advisability of operation. Formerly the surgeon was much more interested in the lower half of the abdomen. Now it is the upper half that is attracting attention. There are a number of important organs, any one of which may become affected in such a way as to require surgical intervention. Besides the gall-bladder and its manifold ills there is always the question of perforation of the stomach or of the duodenum, or of the various forms of pancreatic disease. Besides McBurney's point, with regard to which something will have to be said later, there is Mayo Robson's point, one inch above and to the right of the umbilicus, at which tenderness and pain means an affection of the gall-bladder, usually the presence of calculi in that viscus and subsequent infection. Besides the gall-bladder, however, in recent years the pancreas has come to attract much attention, and not infrequently it happens that for acute infections of the pancreas, the surgeon only finds them when he has operated for something else. With regard to the upper abdomen, it must be remembered that the pains of appendicitis may be reflected upward or those of pleurisy downward, simulating an affection in the upper portion of the abdomen that does not really exist. Dr. Weir considers that the sign suggested by Dr. Eliot, of New York, may prove helpful to surgeons in the recognition of affections of the pancreas. Ordinarily, if the hands are placed upon the patient's lower ribs, the thumbs inward along the costal arches and pressure is made, the ribs will yield one-half an inch to an inch. If there is trouble in the liver or in the pancreas this will not occur, but there will be resistance to the inward pressure and considerable complaint from the patient. Dr. Weir has found this to be true in a number of cases. On the other hand, Dr. Eliot has destroyed the illusions which exist that there is no leucocytosis in pancreatic disease. This makes it more difficult for the surgeon to recognize the condition. Dr. Weir has not found Head's discoveries of much value in practical diagno-

sis. The areas mapped out by him are undoubtedly connected with the organs he suggests, but in practice this set of symptoms does not furnish sufficient basis for the justification of operation. He does not consider that the ordinary location of Burney's point is as absolute as it is sometimes thought to be. Instead of the point midway between the anterior superior spine and the umbilicus, he has found in a number of cases that the point of tenderness is midway between the umbilicus and the end of the outer third of Poupart's ligament. This will bring it considerably below the ordinary location of McBurney's point. He has discussed this subject with Dr. McBurney himself, who considers that too absolute location must not be insisted on. With regard to palpation of the appendix Dr. Weir does not consider with Dr. Edebohls that this organ can be palpated through the abdominal wall, but in thin subjects, in cases of chronic thickening of the appendix, if, while the surgeon's fingers are pressed into the right iliac region over the appendix, while the patient is asked to lift up the right leg, the organ may be felt. The reason, of course, is not far to seek, as the psoas muscle in its contraction presses the appendix up against the downward pressure of the finger. In children Dr. Weir considers that it is advisable to sweep with the finger in the rectum over the right iliac region in order to recognize the condition that exists there.

THIRD DAY—JANUARY 28th.

Recurring Membranous Stomatitis.—Dr. Lewis E. Blair, of Albany, reported a case in which there was a membranous affection beginning in the throat and gradually spreading over the mouth, coming on in subsequent attacks and on one occasion affecting all the visible mucous membranes. At first there was the appearance of simple ulceration followed by the formation of membrane within the mouth and then, as this got better, by the appearance of various lesions on the skin. This patient had a series of these attacks, the first relapse being very severe and occurring a year later, a third attack somewhat mild in character some months afterward, and a fourth attack, the severest of all, lasting six weeks. In this attack nearly all the mucous surface of the fauces, the pharynx and the mouth were covered. Even the palate, except the uvula, the tongue was so swollen as to make articulation very difficult. There were mucomembranous patches on the anus and in the urethra. The subsequent skin lesions began as erythema, then became vesicular in character, the fluid contents, however, were somewhat bloody and giving the appearance of hemorrhagic smallpox.

Skin Eruption.—This took the form of Hebra's erythema exudativum multiforme and ran through its stages, different groups occurring successively; while certain of the erythematous patches were in process of cure this gave the appearance of erythema iridis. Ointment of mercury was employed as a salve on the body in one or two places, and wherever it was used the eruptions were especially severe. During the course of his severest attack, a troublesome bronchitis developed. This was considered to be a manifestation on the mucous membranes of the same conditions noted on the skin. Just when this was thought to be getting better a wandering pneumonia set in which lasted for a considerable period. Extensive desquamation took place, and as most of the skin had been involved this also lasted a long time. The secretions were examined bacteriologically three times by Dr. Blumer, who found in them only cocci, mainly staphylococci.

Optometry Bill.—Dr. Lucien Howe, of Buffalo, introduced a resolution instructing the legislative committee to oppose the passage of the so-called optometry

bill, which permitted the licensing of physicians. This practically put the delicate business of treating eyes suffering from refractive errors in the hands of uneducated men, who knew nothing, except the mere empiric details of fitting glasses. There was already sufficient abuse in this matter without its being licensed by law and the passage of the bill should be prevented. It was hoped, too, that this action of the New York State Medical Society would make physicians realize that they must not encourage its passage in any way.

Hospital Car.—Dr. W. W. Sanford, of New York, said that the necessity for having a car specially arranged for the reception and treatment of persons injured on railroads was now very clear. During the last few weeks three sad accidents followed by appalling loss of life and severe injuries had emphasized this necessity. Experiments had been made in this direction and it was found that an ordinary baggage car so arranged that the baggage compartment served as the operating room or rather the reception ward, while the rest of the combination car served for cots, made an emergency hospital car of a satisfactory kind. It was important, however, that railroads should not trust their injured to chance, and that there should be deliberate arrangements made for immediate aid to the injured after accidents.

Special Hospital Car.—One of the railroads has recently given an order for the construction of a special hospital car sixty feet long, divided into two compartments respectively, forty and twenty feet each. The twenty-foot compartment is meant to serve as an operating room, and is to be finished with attention to every modern surgical aseptic detail. The inside of the car is to be of hard wood that will stand thorough washing, and the floor is to be constructed of rubber tiling flexible enough to yield somewhat to the motion of the car, and yet be hard enough to secure a thoroughly clean floor. All the arrangements within the car are to be of glass and metal so as to stand cleansing, and it is to be separated from the other compartment by glass doors. A special conductor with physician and nurses are to be ready to occupy this whenever needed, and it is to be kept standing on a special track, so that it can be hurried immediately to the scene of an accident. When it is recalled that during the recent accidents men and women died in barns and cabins, and sometimes by the roadside, with no other help often for hours, except a physician who had himself barely escaped with his life, it is easy to understand how much this hospital car will bring of alleviation for suffering. Every railroad in the country should have one.

SYMPOSIUM ON NEPHRITIS.

Pathology of Renal Decapsulation.—Dr. William Murray, of Brooklyn, read for Dr. J. M. Van Cott, of Brooklyn, a paper on renal decapsulation from the pathologist's point of view. Dr. Van Cott described the renal circulation and insisted on the points with regard to it that seemed to make it impossible for renal decapsulation to make any change in the circulation. Virchow and Cohnheim showed that whenever the renal arteries were thrombosed, whether from oligemia or any other cause, the consequence always was a series of depressed cicatrices. The cortex of the kidney did not regenerate, and the capsule became adherent over the depressed areas and thickened while strands of connective tissue from it dipped into the substance of the kidney. When the kidney circulation is interfered with, either by the tying of the artery or the vein, swelling of the kidney takes place. This is due to the fact that the circulation from the capsule brings blood into the kidney, but not in sufficient force to carry it through

the kidney substance. Whenever the capsule is removed and the blood vessels ligated, this swelling does not take place. The very fact of the removal of the capsule then would seem to hamper the aid that might be furnished a deceased kidney from this source.

Restoration of Kidney Substance.—It has always been a question whether the kidney substance would regenerate, and by far the great majority of opinions have been against any such regeneration. It is certainly not to be expected that the removal of the fibrous capsule and the adhesion of the fatty capsule of the kidney would bring relief. All the circulation in the fatty capsule is away from the kidney. Besides, when the capsule becomes adherent there is always serious injury to the cortex, produced because adhesions are formed by means of connective tissue, and during the course of contraction, this always interferes with the nutrition of parenchymatous structures near it, and consequently injures them seriously. As a matter of fact, one would expect a sclerotic condition to be set up in the cortex of a decapsulated kidney.

Causes of Chronic Nephritis.—The ordinarily accepted causes of chronic nephritis are not of a nature that would make one expect relief from decapsulation of the kidney, even though, as is claimed on theoretic ground, there should be an increase of the circulation secured by this means. Chronic nephritis is not an affection of the kidney alone, or at least is not considered to be primary to the kidney. It is always a manifestation of symptoms of general disturbance of the organism. It is due either to the presence of toxins in the blood which the kidney tries to eliminate and proves inadequate to the task, or to a connective tissue hyperplasia, beginning in the blood vessels and spreading to the tissues between the cells of the kidney. In neither of these cases could relief be expected from increased blood supply, even if this should be obtained. If there is an increased blood supply that brings with it more toxins than before, while the previous amount of toxins were causing destruction of renal tissue, the last state will be worse than the first. If there is already a tendency for sclerosis of blood vessels not much relief would be afforded by other blood vessels sharing this same tendency, because the arteries all over the body are thus affected.

Experimental Evidence.—Dr. Van Cott and Dr. Murray removed the capsules from the kidneys of cats in order to ascertain the result. Cats were chosen because these animals are especially resistant to infection. In some cases the capsules were simply stripped from the kidneys and then the organ put back. In others the kidney was made fast between the layers of muscle at the back, in order, if possible, to secure better adhesions, and consequently a better blood supply. In all of these the capsule was regenerated and the new fibrous tissue envelope was thicker than before, and sent down projecting strands into the kidney substance. In one case a cat was found apparently suffering from kidney disease, at least the animal was in bad general condition, and there were albumin and casts in the urine and at operation a large white kidney was found. This animal, however, was not improved by the operation.

Surgical Treatment of Nephritis.—Dr. Willis G. Macdonald, of Albany, said that certain forms of nephritis, as for instance those due to calculi, and to a movable kidney, can certainly be benefited by proper operations. All surgeons who have operated on movable kidneys know that such operations are followed by the disappearance of casts and albumin. It seems probable, however, that the symptomatic nephritis, accompanied by low specific gravity of the urine, and non-toxic urine would not be affected by operation. The true toxic

nephritis, also, such as are due to alcohol, ether, etc., are not encouraging subjects for operation.

Renal Tension.—In certain of the infectious diseases irritation of the kidney substance sometimes causes an intense hyperemic congestion of the kidney. Surrounded as it is by the unyielding fibrous capsule, the secreting substance of the kidney is subjected to pressure which may prevent its proper action. Under these circumstances anuria is likely to set in, or at least a very great diminution of the quantity of urine, with symptoms of uremia. Reginald Harrison, the English surgeon, has spoken of this condition as glaucoma of the kidney. He suggests the splitting of the fibrous capsule in order to relieve the tension, and in a number of reported cases, has brought decided relief in patients who seemed to be doomed. There is no doubt that this form of operation upon acute kidney disease is effective. Surgery has demonstrated the possible benefits it may confer upon nephritis, and there is hope that the surgical horizon may prove to be even wider than has been taught.

Medical Treatment of Nephritis.—Dr. Beverly Robinson, of New York, said that the main principle of the treatment of chronic nephritis, or of the acute exacerbations of chronic nephritis, which constitute the principal source of kidney disease that comes for treatment, is to supplement the action of the kidneys by means of the skin and bowels. For this purpose patients must be advised to sleep between woolen blankets and to wear a long woolen nightshirt. It is always ill-advised for them to wear linen next to the skin. Where they are passing but small quantities of urine, a milk diet is very advisable, though the insistence on this must not pass the limit of common sense and experience. Large quantities of water are advisable, and if this is from some slightly alkaline spring, so much the better. In order to keep the skin active Dr. Robinson has found the wet pack better than almost any other form of treatment. Where there is any complaint of a feeling of discomfort in the kidney region particularly, and in most other cases of acute exacerbations of kidney disease, the application of dry cups over the loins is important. Next to this is the use of high rectal irrigation, with Kemp's tubes, which promotes diuresis, as well as tempting evacuation of the bowels. When symptoms are severe and the patient is not very strong, Dr. Robinson does not believe in the use of pilocarpine, as it may set up an acute bronchitis and produce excessive secretion, with consequent serious edema of the lungs.

Drug Treatment.—Dr. Robinson has found nitroglycerin of great benefit in many cases, and has been especially encouraged by the effects of the old-fashioned sweet spirits of niter, which give good results without any complications. With regard to the severer forms, in which uremic coma is threatening or convulsions are occurring, bleeding followed by infusion of salt solution is the indication, and where the convulsive symptoms are severe, inhalations of chloroform should be used. Though many consider that morphine should be employed in nephritic seizures, Dr. Robinson does not consider it advisable unless the seizures are very frequent, or in certain cases of puerperal nephritis. The inhalation of oxygen often seems to do good. Nausea consequent upon nephritis, will often be relieved by doses of Kirschwasser, which is a dry alcohol containing some prussic acid from peach kernels. For diarrhea prolonged irrigation of the bowels with hot saline solution seems to be the best. For the general treatment of the disease, potassium iodide, as employed by Ringer, often seems to be effective. With regard to morphine, if the pupil is contracted it should never be

used. If it is dilated or normal morphine may be employed.

Edebohls' Operation.—In discussing the papers, Dr. De Lancey Rochester, of Buffalo, said that many cases of nephritis can be treated so successfully by means of medical measures that it is a mistake to subject such a patient in his weakened condition to ether and the knife. The medical man will never fail to relieve the nephritic symptoms by proper medical treatment, and especially local treatment in the loins. Dr. Rochester believes firmly in the use of hot sweats by means of heated air at home, even in the poorest house. All that is needed is the elbow of a stove pipe and an alcohol lamp. Pilocarpine hypodermically has in minute doses always done good work in Dr. Rochester's hands. It should be followed immediately by a hot air bath. Dr. Rochester has seen nephritis following diphtheria become entirely well after six years of care, and has another case under observation where, though the nephritis is seventeen years old, the patient has not much discomfort when directions are followed.

Popular Idea of Bright's Disease.—Dr. Samuel V. Ward, of Albany, said that he is afraid of pilocarpine, but believes in absolute rest and external warmth in the treatment of nephritis. The popular idea of Bright's disease is that it is an absolutely fatal disease within a year or two. Every physician has cases under observation, in which casts and albumin have been in the urine for ten, fifteen or twenty years. These patients are well for all practical purposes, except as regards their power of endurance. For the general treatment of nephritis, Dr. Ward has found arsenic and iron better than all other drugs put together.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL

One Hundred and Tenth Regular Meeting, December 9, 1903.

The Vice-President, Alexander Lyle, M.D., in the Chair.

Case of Carcinoma Recurring in the Pleura Two Years After Breast Amputation.—Dr. B. H. Wells reported this case. The patient was an unmarried woman, forty-five years old, who, in November, 1901, noticed a small, hard nodule in the lower outer quadrant of the right breast. It was not more than a half inch in diameter. The skin, on being moved over the tumor, showed slight dimpling. It was not adherent to the fascia—was freely movable. The axillary glands were not involved, and the general condition was good. A radical operation was done, the greater part of the pectoral muscles being removed, together with entire axillary contents. Recovery was uneventful. Dr. Jeffries, pathologist to the Polyclinic Hospital, reported that at no place around the periphery of the mass was any carcinomatous tissue to be found. The glands and lymphatic trunks were likewise free from involvement. The tumor proved to be an ordinary carcinoma. Running straight down from it was a slender whitish thread, so fine that it could hardly be seen with the naked eye. It led apparently directly to the pectoral fascia. Under the microscope, this thread proved to be a line of carcinoma cells that coursed down through this fascia. Evidently there was one small lymphatic vessel infected. Instead of going to the axillary glands, it passed apparently between the ribs. The patient remained in good health from Nov. 10, 1901, to October 8, 1903. On that date she suddenly developed signs of pleurisy over the lower portion of the right lung. There was no external sign of a recurrence of the carcinoma. In two days the right pleural sac was filled with fluid. A prom-

inent clinician did not think at this time that there was recurrence of the cancer. Paracentesis gave temporary relief, 37 ounces of a straw-colored fluid which coagulated into a thin jelly after being removed. It showed a moderate number of round white cells varying from one-third to five times the diameter of a red blood cell. In some no nucleus was visible. Some had a single nucleus, in others it was multiple. On October 13 the fluid removed was dark red. The patient was evidently failing rapidly, and on November 13 she died of recurrence. This case is of vital interest, because of the relationship of the pathological report to the prognosis. It is also very unusual to find the axillary glands absolutely free from involvement. The lymphatic drainage was evidently of atypical type.

Dr. A. Lyle said that he had so frequently seen recurrence in the manner described, that in removing the breast, he now always dissects from the axilla downward, instead of beginning from the lower portion and dissecting upward. The theory supporting this procedure is that it may be possible to squeeze some of the carcinoma cells through the lymphatics if the dissection begun from below.

Dr. P. A. Potter continued the report of a case which he had related in part at a previous meeting. The patient was a woman twenty-three years old, who had had a miscarriage the second or third month, and was again pregnant in the sixth month. A threatened abortion was stopped by the usual methods. Two days later the temperature rose to 105° F., no other symptoms being present. The temperature lasted for ten days. Five days after her temperature had been normal, it again rose, this time accompanied with much pain in the bones. On the strength of this, the diagnosis of grip was made. Again she recovered after five days without any focal symptoms. Later she had another attack of a similar nature. A physician and a surgeon from New York, both of high repute, were unable to make a diagnosis. It was finally remembered that she had a slight cystitis after an attack of typhoid five years ago. So the bladder was catheterized. The pathologist reported that it was undoubtedly a case of pus in the pelvis of the kidney. There were no renal or bladder symptoms. Under large quantities of water and full doses of urotropin, the temperature went down and the patient has been well since.

Dr. B. H. Wells said that it was remarkable that the patient did not present some local bladder symptoms. Save for this he had recently had a similar case which recovered under urotropin.

Hyperthyroidization Following Curettage.—Dr. B. H. Wells reported this case. A full report of this case will appear in a subsequent issue of *THE MEDICAL NEWS*. The case was that of a woman, fifty-three years old, who had for six months suffered from metrorrhagia. Hemorrhage at this age is suggestive of carcinoma and immediate steps were taken to obtain a specimen for microscopic examination. The patient was nervous, thin and poorly nourished. Her thyroid was enlarged and she had suffered at times from extreme attacks of tachycardia. Before operation the pulse was 110: There was no exophthalmos. Dr. Bennett gave gas and ether. The pathological report was that the scrapings were not malignant. For two days the temperature was normal, progress being uneventful. Suddenly, about the fiftieth hour, she developed a pulse of 190 and a temperature of 105.5° F. The tongue became dry, and a violent diarrhea with brown movements subvented. Her stomach became so irritable that food could scarcely be retained. On the fifth day of the attack, the blood showed no reaction for typhoid. The thyroid had meanwhile become very markedly en-

larged. It transmitted to the hand a distinct thrill and expansile pulsation. From this time on she very slowly improved. The pulse and temperature having reached normal. No symptoms were referable to the uterus. The curettage was done aseptically and the fever was not in any way connected with the operation.

Dr. J. W. D. Maury said that the conditions described by Dr. Wells resembled closely the train of symptoms which frequently follow operations for the removal of the sympathetic ganglia or resection of the thyroid in Graves' disease, except that very few cases of recovery are recorded. The symptoms in this case differ also from those ordinarily described in the tardiness of their development. Cases reported by Kocher, Curtis and others show an average latent period of from twelve to thirty-four hours.

Dr. Charles G. Child, Jr., had a similar case last summer which terminated fatally. A multipara, forty years of age, was admitted to his service at the Polyclinic Hospital in July. She was sent in because of constant flooding. This had been almost continuous for the past six months. Although much run down, her resisting powers seemed sufficient to justify operation. She was found upon examination to have a large uterus, which had apparently undergone general fibrosis. It was hard, about six times its normal size, and the os was patulous. She had a mild degree of exophthalmos. Her pulse on admission was 110, and there was a slight enlargement of the thyroid. Vaginal hysterectomy was performed, the operation lasting a half hour. It was absolutely uncomplicated. No vomiting accompanied return to consciousness, and her condition was normal until the fourth day, when the thermometer in the ward reached a hundred—a prostrating heat wave having come on. Immediately her pulse shot up to 130, and her temperature to 104° F. Her husband said that she was always affected in this way during the extreme heat of summer, and the effort was made to ascribe her condition to this factor. On the evening of the fourth day, however, she became unconscious and remained in a semiconscious state for five days. Her highest temperature was 104.3 and her maximum pulse 184. She was with difficulty roused to take nourishment. On the tenth day after operation she died in coma. Smears from the intestines, the kidneys and the spleen showed no infection of the abdominal cavity whatsoever.

Dr. J. F. Terriberry said that the uterine hemorrhage was doubtless due to excessive vasomotor paresis from toxemia of thyroid origin, aided by the abnormal state of the endometrium. Bowel fluxes and other evidences of excessive gland secretion are frequent in Graves' disease, but hemorrhagic sweatings are rare. It would be interesting to know whether these patients perspire at the time of the bloody flux.

Dr. J. W. D. Maury said that there is no way of determining whether symptoms of acute thyroidism are to develop in a given case of mild exophthalmic goiter which presents itself for operation. They occur in only a small per cent. of such patients. If the sympathetic ganglia or the thyroid are operated on, the symptoms generally develop in twenty-four hours. In the present state of perplexity of the subject, both Dr. Wells and Dr. Child were entirely justified in operating, because there is no way of foretelling this fatal postoperative sequel.

Some External Diseases of the Eye Due to Rheumatism.—Dr. Richard Kalish said that the purpose of this paper was to call attention to those forms of diseases of the eye distinctly rheumatic in their origin, to which this causative factor had not yet been ascribed. Many patients with blear-eyes, distorted lids, and lost eyelashes, spotted corneæ and lessened sight

would have recovered with uninjured or but slightly damaged eyes had the direct cause been known. He took a very emphatic position in disbelieving the fantastic theory that rheumatic diseases are due to micro-organisms. The external diseases of the eye due to rheumatism are marginal blepharitis of the young adult, recurrent hordeoli, or styes, recurrent chalaza, circumscribed bulbar conjunctivitis, limited circumscribed bulbar conjunctivitis and striated keratitis. Marginal blepharitis is usually associated with the so-called strumous diathesis. This is the form which is most familiar to us, and which occurs in children up to the age of puberty. The rheumatic variety differs from this in that it occurs in early adult life; in that it is always bilateral, and in that there is no involvement of adjacent structures. Furthermore sight is rarely interfered with to any extent. The author closed by expressing the belief that if the suggestions made in his paper were more generally recognized by the profession, there would be fewer cases of chronically injured eyes. (This paper will appear in full in a subsequent issue of THE MEDICAL NEWS).

Dr. D. H. Wiesner, in opening the discussion, said that the Society certainly was greatly indebted to Dr. Kalish for a most useful and interesting paper. Blepharitis, conjunctivitis, hordeolum, chalazion and the other rarer conditions described are, it is true, all discoursed upon by the books, but it is unquestioned that no author has as yet assigned their cause as exclusively as has Dr. Kalish, to rheumatism. The usual teaching has been that marginal blepharitis is generally due to bad hygienic surroundings. This would seem to have been proved by the fact that improvement often is very rapid in cases of young children, who are often cured by being placed in better hygienic surroundings. In early adult life, however, eliminating bad hygiene and correcting refractive or muscular errors, do not by any means always effect the cure which may be promptly looked forward to in young children. Call it rheumatism or faulty metabolism, it is strange that this third factor has for so many years passed unnoticed. Chalaza, as is well known, is prone to recur. So marked is this tendency that patients become habituated to operations. If, by treating this rebellious condition by the salicylates a cure can be obtained, even if it be only in a small proportion of cases, a very great gain in the therapy of the eye has been achieved.

Dr. G. H. McAuliffe said that it seems strange to a man whose whole time is given to the treatment of the eye to hear general practitioners say naively that "they never touch the eye, except for conjunctivitis or inflammation of the lids." Many of these gentlemen cannot differentiate iritis from conjunctivitis. Dr. Kalish's paper has shown the general practitioner that eye diseases are by no means altogether local; that they are not always cured by local medicaments, and that there are many pararheumatic conditions which succumb to antirheumatic treatment. What their nature may be is a matter of speculation. But it has long been recognized that the salicylate of soda has an admirable stimulant effect on the ocular circulation. He believes that many cases of blepharitis are due to direct infection of the germ of syphilis. The general practitioner should beware of the use of local remedies.

In closing Dr. Kalish said that there had been so general an acceptance of the views expressed in his paper that little remained for him to say, except to emphasize the statement that rheumatism is not always the underlying cause of the maladies mentioned, but only of the neglected and so-called incurable cases. Many causes unquestionably operate to establish the pathological conditions, but when local treatments of all kinds

have failed, and the diseased conditions persist, rheumatism is the cause. Defective metabolism exists and when this condition of lack of balance between waste and repair has been remedied, the formation of toxins arrested and their elimination accomplished, recovery is assured.

Treatment of Epididymitis.—Dr. Sherman K. Foote read this paper. He outlined the method of treatment employed in the Roosevelt Hospital Dispensary. Upon the development of pain in the epididymis all injections are stopped, the patient is sent to bed and put upon a fluid diet. Free catharsis is ordered, together with rest in bed, and mild urinary sedatives. Locally, in the most recent series of cases experimented upon, a new drug, which is an ester of salicylic acid, has been used. It is a clear liquid, freely miscible, with animal and vegetable oils. Medicinally, it is characterized by the fact that when painted on the unbroken skin, it is absorbed and circulates in the blood as sodium salicylate. This drug, when applied to the scrotum once a day, produces a local feeling of warmth, no inflammation of any import, but occasionally a fine desquamation. Within a period varying from twelve hours to seven days, the pain is very largely controlled. As soon as this has been accomplished, the swelling of the organ is reduced by the application of mercurial ointment locally and iodide of potassium internally, and by thorough strapping. In applying the straps, care should be taken to first confine the testicle to the lower part of the scrotum by a band of adhesive plaster passed tightly around the scrotum above the testicle. The strips which cover the lower part of the scrotum should begin and end at this circular band as a fixed point, and they should be drawn tightly at intervals of a few days each until the swelling has disappeared.

Dr. W. C. Klotz said he was glad to confirm Dr. Foote's observations. He believed, however, that in order to get the good results quoted by the author, it was essential that the application be made in the very earliest stages of the disease.

Dr. J. H. Waterman said that in the Hospital for the Ruptured and Crippled, where a great many of these cases congregate, it is customary to treat them with equal parts of the tinctures of belladonna and iodine.

BOOKS RECEIVED.

The MEDICAL NEWS acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the MEDICAL NEWS will shortly appear.

REPORT OF THE STATE BOARD OF HEALTH OF ILLINOIS. 1903. 8vo, 380 pages. Springfield, Ill.

REPORT OF THE BUREAU OF ANIMAL INDUSTRY. Vol. 19. Government Printing Office, Washington, D. C.

DISORDERS OF METABOLISM. By Dr. C. von Noorden. Part 4. 8vo, 80 pages. E. B. Treat & Co., New York.

PROGRESSIVE MEDICINE. Vol. 4, 1903. 8vo, 444 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

BLOOD PRESSURE IN SURGERY. By Dr. Geo. W. Crile. 422 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

A COMPEND OF PATHOLOGY. By Dr. A. E. Thayer. Second edition. 8vo, 711 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Edited by Dr. A. H. Buck. Vol. 7. Sactulc. Quarto. 951 pages. Illustrated. Wm. Wood & Co., New York.